THE PLANNING AND EVALUATION OF NONCAPITAL DEVELOPMENT PROJECTS

THE AGENCY FOR INTERNATIONAL DEVELOPMENT

This paper is composed of two separate but closely related documents.

A summary description of the logical framework methodology used by A.I.D. for planning and evaluating noncapital development projects.

A summary report on the application of the methodology in Ecuador along with some observations by the author.

1972

SUMMARY DESCRIPTION -
LOGICAL FRAMEWORK
METHODOLOGY

AGENCY FOR INTERNATIONAL DEVELOPMENT

Noncapital Project Planning and Evaluation Methodology

This is a summary description of the AID methodology for planning and evaluating noncapital projects. It includes:

- Elements of the methodology.
- Characteristics and limitations.
- Definition of terms.
- The logical structure of a development project diagram.

Elements of the Methodology

1. The Logical Framework - The key element in project planning and evaluation is the establishment of a logical framework for the project which (1) defines project inputs, outputs, purpose, and higher goal in measurable or objectively verifiable terms; (2) hypothesizes the causal (means-end) linkage between inputs, outputs, purpose, and goal; (3) articulates the assumptions (external influences and factors) which will affect the causal linkages and (4) establishes the indicators which will permit subsequent measurements or verification of achievement of the defined outputs, purpose, and goal.

The logical framework is primarily a project planning device. It also is used for re-examination of the original design of ongoing projects as a necessary prelude to evaluation, i.e., it sets the stage for determining and validating whether or not the project outputs are being produced, whether these outputs in fact are serving to achieve the project purpose; and finally whether this achievement is making a significant contribution, as planned, to the higher order goal.

The logical framework also establishes the practical limits of responsibility of project management. Articulating the project planning assumptions in explicit and operational terms permits a clearer separation between manageable interests and those factors which appear to be beyond the control of the project management team. The input-to-output level is largely susceptable to managerial control with relatively few uncontrollable external factors. At the output-to-purpose level, the possibility of managerial control decreases while external factors become more important. At the purpose-to-goal level, the ability of project management to control events usually is further diminished. In evaluating project progress, it is necessary to examine the original planning assumptions about the role of external factors and to validate the hypothesized means-end linkages.

2. The Evaluation Process - The re-examination of project design is followed by an evaluation process which assesses (a) the performance of all input factors (personnel, commodities) and all action agents (contractor, other donor, host country) and (b) actual quantitative and qualitative progress toward outputs, purpose and goal. Guidelines, advisory material and worksheets have been developed for this purpose.

3. The Evaluation Review - The evaluation process culminates in a group interaction aimed at reaching sound evaluation conclusions and deciding future actions. Formal reviews include such people as the Mission Director, contract party chief, Mission Program Officer and Project Officer, representatives of the host country and other donors. The review is designed to be a collaborative and constructive effort, not a judicial inquiry; replanning, not recrimination is the intent.

4. The Mission Evaluation Officer - The process is guided by a designated Mission Evaluation Officer who helps the project managers analyze the project within the logical framework, organizes the group review and assures follow up on decisions and action assignments.

5. The Evaluation Report - Finally, the Mission prepares for AID/W a Project Appraisal Report (PAR), a low-cost by-product of the evaluation process which shows AID/W whether rigorous evaluation has occurred.

Characteristics and Limitations

Evaluation is intended primarily to produce replanning, i.e., project planning, implementation, evaluation and replanning constitute a continuing process which ends only when the final planned result is achieved. To achieve the most direct and immediate feedback of evaluative findings, evaluation is done by the action personnel, including the AID project officer, the host country project director, and contract team members.

All aspects of project planning (i.e., the formulation of targets, causal linkages, indicators and assumptions) are defined by the project planner and are project-specific. Similarly, the degree of rigor and the level of effort in collecting and analyzing data for the evaluation are determined by the action officer and are project-specific.

The methodology does not assure that the project is optimal, i.e., that the project directly addresses the most critical constraint to goal achievement, and is the most effective means for overcoming that critical constraint unless the evaluators choose to explore alternative approaches.

The methodology is ethically neutral. It gives no guidance on questions of equity or benefit incidence such as equitable income distribution, employment opportunities, access to resources, popular participation in decision-making and in the fruits of development

projects unless such aspects have been explicitly included in the statements of goal or purpose.

The methodology is programmatically and technically neutral. It gives no guidance on proven strategies and techniques, cost and feasibility of replication, effects on ecology, concentration on key problem areas, reliance on the private sector, etc.

The methodology permits, but does not require, cost/benefit and cost/effectiveness analysis.

The logical framework matrix can be modified by the user for special circumstances, e.g., one or more horizontal rows can be added to provide for intermediate subsectoral goals.

Definition of Terms

Project Outputs:

The specifically intended kind of results (as opposed to their magnitude) that can be expected from good management of the inputs provided.

Example: Manpower, training, machinery and building materials (inputs) can be managed to produce an irrigation network, trained operational staff, a water utilization schedule and a user rate scale (outputs).

Project Purpose:

The primary reason for the project, i.e., the development which is expected to be achieved or the problem which is to be solved if the project is completed successfully and on time.

Example: An irrigation network and associated facilities and services (outputs) are intended to produce increased per hectare yield (project purpose).

Goal, Sector/Program Goal:

The programming level beyond the project purpose, i.e., the next higher objective to which the project is intended to contribute.

Example: Increased per hectare yield (project purpose) is intended to result in expanded exports of agricultural crops (sector goal).

Assumption:

A situation or a condition which must be assumed to exist if the project is to succeed, but over which the project management team has little or no control.

Example: Increased crop yield (project purpose) will contribute to expanded export of agricultural crops (sector goal) only if price and market conditions are favorable (assumption).

Objectively Verifiable Indicators:

Pre-established criteria or measures of an explicit and specific nature designed to provide objective assessment of project progress. Progress indicators should be objectively stated so that both a proponent of a project and an informed skeptic would agree that progress has or has not been as planned. Pre-establishing objectively verifiable indicators and targets helps focus discussion on evidence rather than opinions.

Target:

An indicator with a magnitude to be realized at a specific date; an explicit and objectively verifiable measure of results expected. The term target is used at the output, purpose and goal levels to show the kind and magnitude of anticipated results.

Project Linkages:

a. There is a causative linkage between project outputs (irrigation network) and the ultimate project purpose (improved crop yields). The outputs must exist before the purpose can be achieved. The existence of the outputs does not however guarantee that the purpose will be achieved. Factors outside the project design (farmer attitudes and access to credit) may prevent achievement of project purpose. Thus the causative relationship between project outputs and purpose must be stated as a hypothesis, the external factors (assumptions) must be explicitly identified; and evaluation must then verify whether or not the hypothesis was realized.

b. Similarly, there is a causative linkage between project purpose (improved crop yields) and progress toward a higher sectoral or program goal (expanded export of agricultural crops). The achievement of project purpose does not guarantee that the goal will be reached. Factors outside the project design (price and market conditions, spoilage and other losses) may prevent planned progress toward the higher goal. Thus the causative relationship between project purpose and higher goal must be stated as a hypothesis, the external factors (assumptions) identified, and the hypothesis validated.

c. These linkages should also be proportional as well as causative. Thus, the improved crop yields will mean little for export earnings if they occur in a relatively small area. Analyzing a project in terms of means-ends linkages may highlight a lack of realism in the original plans, i.e., a disbalance between modest means and grandiose targets. It is important to determine if the means are sufficient in quality and quantity to produce the desired end product.

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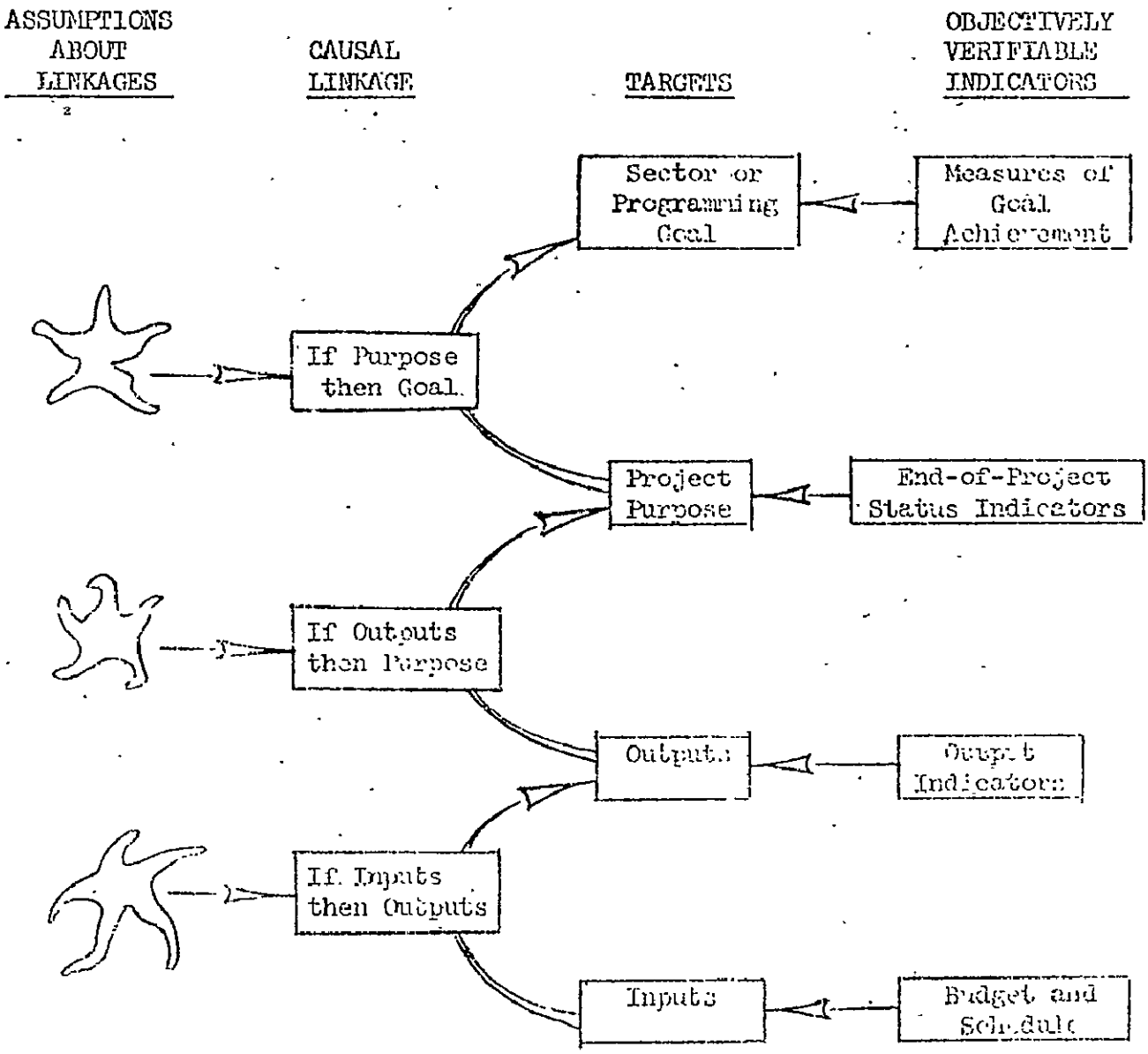
THE LOGICAL STRUCTURE OF
A DEVELOPMENT PROJECT



APPLICATION OF THE METHODOLOGY - ECUADOR

Introduction

This document describes the experience of the A.I.D. Mission to Ecuador in applying the logical framework to the design -- and subsequently to the evaluation -- of technical assistance projects. The document is composed of two major sections.

Part I - contains descriptions of the application of the logical framework for:

clarifying the design of an ongoing project,

designing a new project,

evaluating progress toward established targets,

the evaluative review.

Part II - discusses issues and problems in applying the logical framework and includes the author's recommendations for dealing with these problems.

THE LOGICAL FRAMEWORK METHODOLOGY

a Case Study and Commentary

by

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This case study and the ideas presented therein are those of the author, and should not be interpreted as representing the official policy of either USAID/Ecuador or the Agency for International Development.

PART I: CASE STUDY EXPERIENCE

This paper explores the process of developing and using the logical framework matrix, some of the problems encountered, and ways of coping with them. This case study represents the experiences of only one Mission in using the methodology. Within limits the methodology is flexible, and each person working with it should experiment with various alternatives and styles to find one that suits his own needs and situation.

Project Design and the Logical Framework[1]

In working out the initial stages of the project design we have found that it is best to work in small groups.

The purpose of these early meetings is to describe the project as completely as possible in terms of a means-ends continuum, or logical (as opposed to operational) PERT-type chart. The idea is to try to describe and chart the logical relationships between all portions of the project prior to preparing the logical framework matrix.

Case #1. Clarifying the Design of an Ongoing Project

In the following discussion, we will examine the process of clarifying the design of a grant project in Industrial Development. The project management working group accepted the fact that prior project activity had been

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1. One caveat must be entered when we talk about A.I.D.'s experiences in using the logical framework matrix in designing projects. In the case of Ecuador, at least, our projects tend to have a long history, and the logical framework system arrived on the scene rather late. Most of our efforts have thus far been devoted to fitting already existing projects into the logical framework matrix rather than using that system as a means for designing new projects.

oriented toward building certain Ecuadorean institutions, so we started the discussion at that easily identifiable point: institution building.[2] We did not, however, attempt at this stage to label the institution building objective as project purpose, output or higher goal.

Then we asked why we needed these institutions, and answered so that CENDES would conduct market and feasibility studies, promote investment lobby for changes in investment laws and provide technical assistance to new private industries, and so that ICEI would negotiate with Andean Common Market countries to develop increased markets for Ecuadorean-manufactured products and lobby for improvements in national export laws and incentives.

Why did we want these institutions to perform these functions? So that, CENDES activities would change the knowledge and attitudes of domestic and foreign entrepreneurs toward business expansion in Ecuador, and ICEI activities would create expanded markets and incentives for Ecuadorean manufactured products.

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2. It should be noted that this was a previously existing program, so we were dealing with certain given factors that may be more flexible in designing new projects. The Industrial Development project had actually begun in 1962. At the time the logical framework system was introduced in 1971 the project had already gone through several metamorphoses, and nearly $1,500,000 had been expended. The justification for continuing a project in the industrial sector was based on an analysis of demographic pressures facing Ecuador. With a population growth rate of approximately 3.5% and a strong rural-urban migration, we estimated that some 85,000 new jobs would have to be created each year merely to keep pace with the growth of the labor force in the major cities. New investment had remained constant at around $60,000,000 during the five-year period preceding this analysis of the project, yet unemployment, or underemployment, continued to increase. Two institutions established under the project, the National Development Center (CENDES) and the Institute of External Commerce (ICEI), appeared capable of attracting relatively large amounts of foreign and domestic private capital, with relatively little A.I.D. input, if their operations and services could be expanded. There are several other activities involved in the industry project, but for purposes of clarity, the rest of this psper is limited to only these two.

Why did we want these to occur? So that, as a result of "improved" knowledge and attitudes, the existence of improved legislation and incentives and the availability of adequate markets, there would be a substantial increase in private investment in Ecuador.

Why did we want to produce an increase in private investment? So that, in addition to other potential benefits, a substantial number of new jobs would be created. This would address the problem of unemployment, one of the major problems facing Ecuador in the urban sector.

The working group then asked the question, "What is needed to develop a capacity within the institutions to perform these critical functions?" Both of the institutions already existed, but were not adequately performing the functions. One of the bottlenecks identified was the lack of manpower trained to conduct market and feasibility studies, to provide technical assistance to potentially new industries, to promote investment, or to promote exports. Another bottleneck was inadequate budget.

Based on this analysis, the working group agreed on the need for specialized contract technicians to train CENDES and ICEI staff to perform these functions. The group also agreed on the need for the host government to increase the number of job positions in the two institutions and increase their annual budgets.

The preceding is only an outline of the thought process, but it produced a schematic diagram showing the logical interrelationships of the project, from the basic inputs to the ultimate goal. A simplified form of this diagram appears in Figure 1.

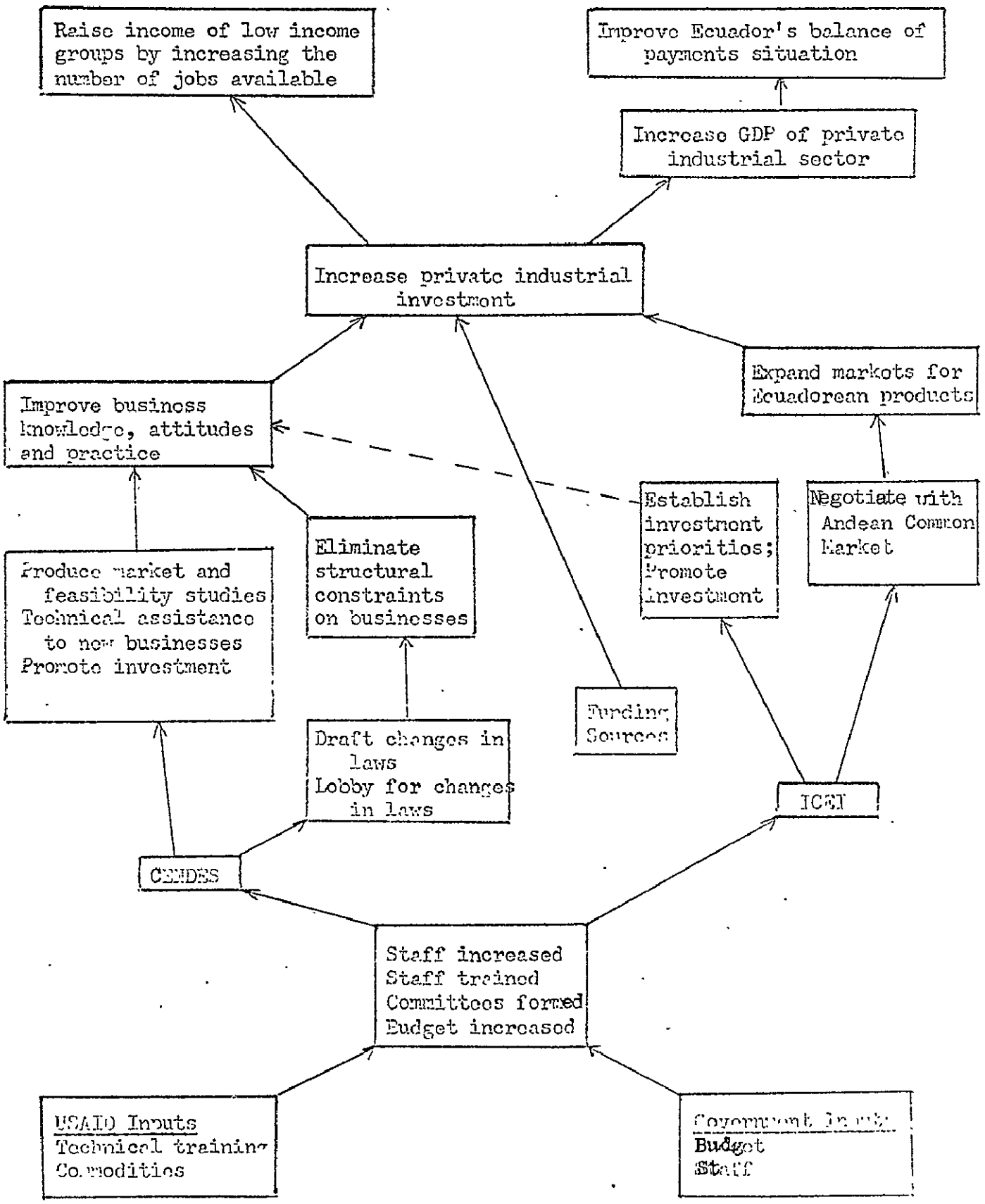

Figure 1. Schematic Diagram of Industrial Development Project

The completed schematic diagram was reviewed by the senior Mission staff and the working group. Once the basic structure of the diagram was accepted, the review group turned to the importance of the various levels of the project and its structure in terms of the logical framework matrix. Immediately there was an argument over whether the purpose of the project was (a) to increase private investment with the institutions as a necessary intermediate causative step, or (b) to develop an institutional capability to encourage private investment?

This issue, which occurs frequently in development project design, was resolved on the basis of a number of practical considerations. USAID inputs, including loans, were not likely to make a significant impact on the aggregate level of private investment. More important, the "problem" of increasing private investment was not one that could be solved in the limited time frame of USAID involvement in the project. Rather, it was a continuing problem that would require constant attention by the Ecuadorian Government over an indefinite period of time. Given this long-range need, the important donor role for the USAID was to support the development of local institutions that could adequately and competently address the problem over a long period of time. Hence, the project was best described as an institution-building project contributing to a higher goal of increasing private investment.

Once the project was thus defined, it became possible to designate other linkages in the project design and other elements of the design. The market studies, technical assistance and promotion provided by CENDES, for example, could be viewed as performance indicators of a viable institution, as could the investment promotion activities of ICEI. The evidence of an expanding export market could be seen as a result of ICEI performance. Increased

private investment (the higher goal) could be expected to result from the successful activities of these institutions if we assumed that they would successfully affect the knowledge, attitudes and practices of potential private investors.

Since the primary concern was to create jobs for low-income persons (the overall rationale for undertaking this project), job creation was established as the goal. To maintain a logical progression from institutional capability (purpose) to jobs created (goal), however, required the addition of a fifth intermediate row to the matrix, at the sector goal level.

When the basic structure and objectives of the project were agreed by both the USAID and host country officials in the Ministry of Production, CENDES and ICEI, the small working group reconvened to work out the details, specifically the targets, assumptions and means of verifying results within the context of the logical framework matrix.

At this point the most crucial consideration was establishing adequate targets at all levels.[3] How many feasibility studies should CENDES produce annually? At a previous average of $1,000,000 worth of new investment per study successfully completed, CENDES would have to produce at least forty studies annually to have a significant impact on the level of investment. How many people would have to be trained to produce forty studies per year? We estimated twenty. How many jobs could be created as a result of the activities of CENDES and ICEI? At a rate of $2,000 per job (this ratio was entered as an assumption) our targeted rate of job creation was 20,000 new jobs per year.

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3. The most important thing about establishing targets is that they be established. Later evaluation of a project using this system is possible only if targets are set initially, no matter how tentative they may have been at the time they are established

To arrive at the assumptions (i.e., external factors) relevant to the project we worked upward through the matrix, starting with the inputs. Basically, we explored assumptions with assertive statements:

1. The U.S. technicians would be able to train required personnel on schedule, if:
   a. They were contracted on time.
   b. They had adequate competence in Spanish and human relations as well as technical competence.
   c. The Government of Ecuador increased the number of staff positions on schedule and hired people to fill them.
2. The trained CENDES staff would be able to produce the targeted forty studies on schedule if:
   a. They were selected by the government on the basis of merit rather than political connections.
   b. An adequate budget was provided to CENDES to permit travel and per diem.
   c. Trained personnel were not hired away from CENDES by private enterprises.
3. The trained ICEI staff would be able to develop new markets for Ecuadorean products if:
   a. They were selected on the basis of merit rather than political connections.
   b. An adequate budget was provided by the government for international travel and per diem.

FIGURE 2

PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK

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

Project Title & Number: _____

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program or Sector Goal: The broader objective to which this project contributes:	Measures of Goal Achievement:		Assumptions for achieving goal targets:
Project Purpose:	Conditions that will indicate purpose has been achieved: End of project status.		Assumptions for achieving purpose:
Outputs:	Magnitude of Outputs:		Assumptions for achieving outputs:
Inputs:	Implementation Target (Type and Quantity)		Assumptions for providing inputs:

c. Their skills were recognized and utilized by top ICEI management.

d. Ecuadorean products met international standards.

4. The studies produced by CENDES would result in a $40,000,000 increase of annual investment, if:

a. Ecuadorean tax and incentive policies were competitive with those of other foreign countries that could produce the same products.

b. The studies were of sufficiently high quality.

c. The studies were adequately promoted among potential investors.

d. There were adequate markets for the new products.

5. A $40,000,000 increment in annual investment would result in 20,000 new jobs created annually if:

a. The new investment was sufficiently labor intensive that new jobs could be created at a ratio of one job for each $2,000 in new investment.

b. The new investment did not replace existing jobs.

These are but a few examples of the assumptions that can be made about the viability of causal linkages within a project. We tried to think of and list every event or situation that could influence the validity of our assertive statements concerning the causative linkages from inputs through goal. An alternative means of arriving at the same type of assumptions would be to word the statements as follows: "the forty studies produced by CENDES will <u>not</u> result in $40,000,000 in new investment annually unless..."

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	TARGETS				MEANS OF VERIFICATION	MAJOR ASSUMPTIONS
Program Goal	**Indicators of Goal Achievement**	**Goal Targets**					
		FY 72	FY 73	FY 74	FY 75		
Raise the level of income of that extremely large segment of the population (estimated by the Government of Ecuador at 53 per cent) which is on the margin of society.	Number of new jobs created (in thousands)	5	10	15	20	Central Bank Figures National Planning Board Statistics CENDES records	1. New investment will not replace existing jobs
	Annual income from new jobs created (in US $ 000,000)	5	10	15	20		2. New investment is sufficiently labor intensive that jobs will be created at a rate of one job for each $2,000 of new investment
Sector Goal	**Indicators of Goal Achievement**	**Goal Targets**					
		FY 72	FY 73	FY 74	FY 75		
Foment dynamic industrial growth in Ecuador	Increase in private industrial investment (US $ 000,000)	70	80	90	100	Central Bank Figures National Planning Board Statistics CENDES Reports ICEI reports	1. Investment capital will be available from private or development banks or international lenders 2. Government policies will continue to favor a private enterprise system. 3. Ecuadorean tax and incentive policies are competitive 4. Studies are of high quality. 5. Studies are adequately promoted among potential investors. 6. There are adequate markets for new products.
	Increase in capital stock of private industry (in per cent)	10	20	30	50		
	Increase in GDP of private industrial sector (in per cent)	25	50	75	100		
	Number of new businesses established	25	50	100	175		
Project Purpose	**End of Project Status--FY 1975**	**Performance Targets**					
		FY 72	FY 73	FY 74	FY 75		
Establish and institutionalize a system of services and information that will encourage private industrial investment in Ecuador	1. CENDES a) Preparing at least 40 market and feasibility studies yearly	15	20	30	40	CENDES records Project manager reports Contractor reports	1. Personnel trained are selected on basis of merit. 2. There is adequate budget to permit travel and per diem. 3. Trained personnel are not hired away from CENDES by private industry 4. Skills of trained people are recognized and utilized by top ICEI management 5. Ecuadorean products meet international standards
	b) Providing at least 96 man months of investment promotion activities annually	30	48	72	96		
	c) Providing investment assistance to at least 50 industries annually	20	30	40	50		
	2. ICEI a) Increasing external markets for Ecuadorean manufactured products by at least 15% annually	8	10	12	15	ICEI records Project manager reports Contractor quarterly reports	
	b) Devoting at least 60 man months annually to export product development and marketing	10	20	40	60		
	c) Establishing export and import policies for the government	No quantitative targets				Changes in laws published in the official register	
Outputs	**Output Indicators**	**Output Targets**					
		FY 72	FY 73	FY 74	FY 75		
Structural and technical capability of institutions developed	1. CENDES a) Market and feasibility studies staff trained	5	10	15	20	Contractor reports Project manager reports	1. Government of Ecuador increases staff positions and hires personnel on schedule 2. U.S. technicians have competence in Spanish and human relations as well as technical competence, and are able to develop good rapport with their counterparts.
	b) Investment promotion staff trained	0	5	7	10		
	c) Technical assistance staff trained	0	0	5	10		
	d) Technical assistance program initiated			x			
	2. ICEI a) Export promotion staff trained	0	5	10	15		
	b) Records system established			x			
	c) Product development staff trained	0	0	7	9		
	Inputs	**Budget and Implementation Schedule**					
		FY 72	FY 73	FY 74	FY 75		
	USAID: 1. Total cost ($1,000,000)	300.0	300.0	200.0	200.0	USAID documents Project manager reports	Technicians hired on schedule
	2. Technical personnel (m/m) a. market and feasibility studies	24	24	12	12		
	b. investment promotion	12	12	12	0		
	c. export promotion	24	24	24	12		
	d. product development and business management assist.	12	24	24	12		
	3. Commodities (US $ 000)	100	50	0	0		
	4. Training (short term international visitation) a. people/man-months	5/10	10/20	10/20	5/10		
	Government of Ecuador: 1. Total cost ($700,000)	100.0	200.0	200.0	200.0	CENDES and ICEI records Official government budget	Economic stability in Ecuador Oil revenues utilized for development purposes
	2. Increased personnel	5	20	49	64		
	3. Increased budgets for these activities (100.0 base) a. CENDES	105	110	120	125		
	b. ICEI	100	105	110	125		

The result of this process can be seen in the sample logical framework matrix for the Industrial Development project, in Figure 2a. Figure 2 is the standard logical framework form used throughout A.I.D. Figure 2a is a modified version developed by USAID/Ecuador. The modified version has an added row, "Sector Goal" as an intermediate level of objective between the project purpose and the program goal. It also has an added column, "Targets" which elaborates and quantifies the indicators column.

The example just described did not involve design of a new project, but rather the clarification and verification of the design of an existing one. We were able to start at the level of institution building because previously existing activity stressed that aspect. Our objective was to ascertain whether or not the project strategy, would logically lead to the broader objectives, and if the inputs were appropriate to the needs of the project. During the course of the exercise we were able to develop a more precise definition and a stronger concensus of the project's orientation to eliminate some activities that were superfluous to the accomplishment of the objectives, and to increase activities directly related to them.

Case #2. Designing a New Project

In designing a new project we generally follow a slightly different process, although the end results are the same. An example of this can be seen in a recently developed nutrition project.[4] Empirical evidence gained from a

4. The working group in this case consisted of the project manager (a nutritionist), the evaluation officer, and on an ad hoc basis, the Mission economist and chief of the Family Health Division -- all members of the USAID/Ecuador staff. Host country officials were not present at the working sessions, but the project manager maintained a close liaison with them, expecially the director of the National Nutrition Institute and representatives of the Ministries of Public Health and Agriculture. All portions of the design were submitted to them for concurrence and suggestions, so the project was actually developed in close coordination with the local institutions.

nutritional survey of Ecuador pointed to a wide-spread problem of malnutrition. It was the judgement of a resident nutritionist that the problem was most critical, with the most serious implications, among pregnant and lactating mothers and pre-school aged children, especially in rural areas, but among the urban lower classes as well. We could state the "goal," then, as to "reduce the incidence of malnutrition among this population."

The discussion turned to the means of reducing the incidence of malnutrition among the target group. After considering several alternatives, we chose a strategy involving three coordinated components: (1) a short-run maternal child feeding activity using existing maternal child health centers; (2) an effort to develop the ability of local government institutions to plan, implement and evaluate a comprehensive national nutrition project; and (3) a long-run production-package approach to encourage small farmers to raise and consume more nutritious foods.

With this decision we began to develop the project plan. The first approach could be addressed by improving the distribution and utilization of Food for Peace Title II food imports by maternal child health centers. Two voluntary agencies (CARE and CARITAS) would redesign their local programs to train maternal child health center personnel to select food recipients according to nutritional needs. They would also be trained in methods of programming food distribution, detecting whether or not intended recipients were indeed consuming the food supplements, and maintaining records on changes in heights and weights.

The second approach involved increasing the number and diversifying the staff of the National Nutrition Institute (INNE), establishing a coordinating

committee comprised of the Ministry of Public Health and Ministry of Agriculture, training the personnel of these groups, and helping them develop a national nutrition program.

For the third approach, the Ministry of Agriculture would assign technicians from the Agricultural Research Institute to conduct research on nutritious foods that could be grown on small family farms. A.I.D. would provide training for these researchers and for the agricultural extension agents who would introduce the production-packages to small farmers.

The result of these early discussions was a means-ends continuum chart which appears in abbreviated form in Figure 3. When this was approved we could proceed to develop the logical framework matrix and establish targets and assumptions as before.

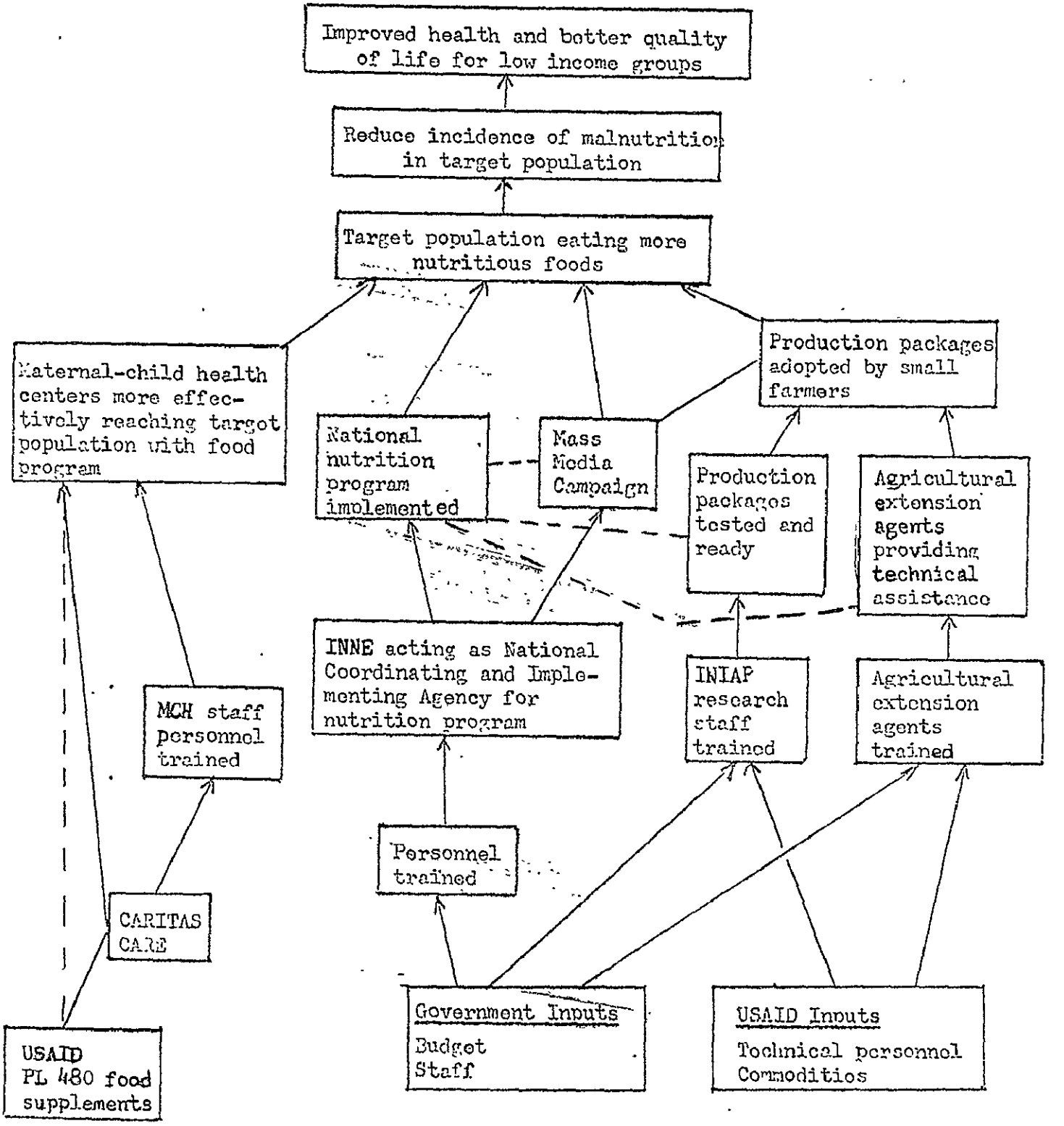

Figure 3. Sample Schematic Diagram of Nutrition Project

Figure 4

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	TARGETS	MEANS OF VERIFICATION	MAJOR ASSUMPTIONS
Program Goal: Improved health and quality of life for low-income groups in Ecuador	**Indicators of Goal Achievement:** 1. Reduced incidence of protein-calorie malnutrition among pre-school aged children 2. Reduction in child deaths by measles and gastroenteritis (indirect indicator of reduced malnutrition)	**Goal Targets:** FY 73 / FY 74 / FY 75 / FY 76 1. 5% / 10% / 15% / 20% (to reach 80% by 1980) 2. 0 / 0 / 5% / 10% (to reach 30% by 1980)	1. Pre- and post-project nutrition surveys Statistical reports of Ministry of Health (MOH), CARITAS, CARE.	Adequate health centers and subcenters are constructed Parasites and other gastro-intestinal disorders are controlled Birthrate in target population remains constant or declines
Intermediate Goal: Improve the food consumption habits and nutritional intake of low-income population	**Indicators of Goal Achievement:** 1. Mothers enrolled in MCH program conform to nutritional requirements 2. Percentage of children receiving food who conform to established nutritional deficiency standards 3. Percentage of MCH foods produced locally 4. Number of farmers using production packages (in 000s) a. Cuy b. Quinoa c. Legumes	**Goal Targets:** FY 73 / FY 74 / FY 75 / FY 76 1. All women receiving food are either pregnant or lactating mothers with demonstrable nutritional need. 2. 25 / 50 / 75 / 100 3. 0 / 0 / 15 / 25 (to reach 60% by 1980) a. 0 / 1 / 5 / 10 b. 0 / 0 / 2 / 7 c. 0 / 0 / 0 / 5	INNE statistics CARE, CARITAS records INNE-conducted surveys Ministry of Agriculture extension agent records	PL 480 food resources continues to be available at or near present levels Funds available from foreign donors or GOE budget for implementing projects Farmers are willing to produce different products Extensionists devote sufficient time to production packages Nutrition standards are applied and controlled by MCH personnel
Project Purpose: Develop an effective, viable multi-disciplinary institution with authority and resources to carry out a national nutrition program involving resource coordination, policy guidance and promotion of applied research	**End of Project Status-- FY 1976:** INNE with an annual budget of approximately US $100,000, with a competent staff conducting and/or supervising the national nutrition programs indicated below: a. Mass media campaign (hours of broadcasts monthly) b. Promotion of nutritious food production by small farmers (no. of farmers contacted annually) c. Stimulation of private development of low-cost nutritious foods to replace PL 480 supplies d. Improve distribution of food through MCH system	**Performance Targets:** FY 73 / FY 74 / FY 75 / FY 76 $25. / $50. / $75. / $100. a. 0 / 5 / 20 / 60 b. 0 / 5 / 10 / 25 c. No quantitative targets established at this time d. No quantitative targets have been established	Official budget Technician reports INNE statistics and budget Extension agent reports Evaluation scheduled for 1974	Government of Ecuador (GOE) is sufficiently committed to solving nutritional problem to implement the program effectively Adequate transportation and per diems available to extension agents and INNE staff
Outputs: INNE INIAP Ministry of Agriculture Maternal Child Helth Centers	**Output Indicators:** 1.a. Staff trained and working b. Library and laboratory equipped c. Mass media program developed d. National nutrition program developed e. Coordinating committees formed 2.a. Production package staffs trained b. Production packages developed c. Laboratories equipped 3.a. Extensionists trained 4.a. Staff trained b. Centers properly equipped	**Output Targets: (cumulative)** FY 73 / FY 74 / FY 75 / FY 76 a. 4 / 5 / 7 / 9 b. x c. x d. x e. 1 / 2 / 2 a. 3 / 6 / 12 b. cuy quinoa legumes c. 1 / 3 a. 0 / 10 / 25 / 40 a. 50 / 200 / 350 / 500 b. 20 / 100 / 200 / 400	1.a. Nutrition advisor reports b. On-site inspections c. Mass media contractor reports d. Official decree e. Official record 2.a. Contractor reports b. Reports issued c. On-site inspection 3.a. Ministry records Contractor reports 4.a&b. CARE, CARITAS reports	GOE establishes positions and hires personnel on schedule Commodities arrive on schedule
Input Agencies: USAID/Ecuador Government of Ecuador CARE, CARITAS Other Donors (PAHO)	**Inputs:** 1. Total cost of project ($507,600) 2. Personnel (man/months) a. Nutrition advisor b. Mass media advisor c. Production specialists d. Other short-term technicians 3. Commodities (US $ 000s) 4. PL 480 Title II food (US$ 000s) 5. Other costs (US$ 000s) 1. Staff (number of persons) a. INNE b. INIAP c. Extensionists 2. Budget (US$ 000s) Staff (training MCH personnel) Estimated value of donations ($000s)	**Budget & Implementation Schedule** FY 73 / FY 74 / FY 75 / FY 76 101.0 / 155.7 / 146.4 / 104.5 12 / 12 / 12 / 12 0 / 6 / 6 / 0 6 / 24 / 18 / 0 0 / 3 / 5 / 3 8.0 / 22.0 / 17.0 / 12.0 900.0 / 900.0 / 900.0 / 900.0 36.0 / 43.0 / 51.0 / 38.0 a. 4 / 5 / 7 / 9 b. 3 / 6 / 12 / 12 c. 0 / 10 / 35 / 40 40.0 / 60.0 / 90.0 / 125.0 3 / 5 / 5 / 7 244.0 / 261.0 / 214.0 / 197.0	USAID documents and audit reports Receiving reports Official assignment of personnel Official GOE budgets Vouchers and audit INNE records	Project approved for implementation on schedule Technicians hired on schedule PL 480 foods continue to be available Sufficient GOE commitment to allocate budget resources Continued funding of project by AID/W

The Evaluation Process

Evaluating Progress Toward Established Targets

As mentioned earlier, the establishment of adequate targets at all levels (output, purpose, goal) of the logical framework matrix provides the basis for evaluating the progress of the project at all levels. This is a form of evaluation known as "discrepancy analysis." The difference between actual performance and established targets -- no matter how arbitrarily they may have been initially set -- signals the need to ask questions about the project, its potential impact, chances for success, significance of the targets, assumptions, etc. Basically stated, the value of the evaluation begins with the completeness and detail of the logical framework.

During the data collection stages of the annual progress evaluation we usually work in a small group. We use the evaluation work sheets to record the information needed for the evaluation. How many studies was CENDES expected to produce? Twenty-five. How many did it actually produce? Fifteen. How many of these studies actually resulted in new investment? Nine. What was the amount of new investment? Nine million dollars. How many new jobs were created? Three thousand five hundred. How many people were trained to perform the studies compared to how many we had planned to train? Eight compared to ten.

Once this detail is recorded, we expand the size of the working group and address two types of activities: those involving the performance analysis worksheets and those which are more unstructured, probing the logic and significance of the project targets.

The unstructured sessions generally revolve around an analysis of the discrepancies found between what we had targeted and actual performance. The first question we ask is "what is the significance of any discrepancies that have been found?" If we had planned to train 10 study writers and only 8 were trained, the shortcoming may not severely affect the success of the project. But if we had anticipated $20,000,000 in new investment for that year as a result of the project, and only $9,000,000 occurred, the discrepancy may well signal the potential failure of the project.

Surprisingly, however, it is frequently difficult to assess the significance of targets. One of our cooperative projects, for example, has a target of 35 member cooperatives affiliated to a national federation by the end of the project. But why thirty-five? Why not forty, or thirty? Will it fail if there are only thirty-four? How much stronger would the movement be if there were forty-five? These are questions that are usually very difficult to answer in small social development projects.

The second question we ask in the unstructured sessions is "why?" Why did the level of new investment not reach the expected target? Why did CENDES not publish 30 studies this year? Why did our cooperatives not produce the amount of rice they were expected to? Why did the number of textbooks we had targeted for not get printed. The consequence of not meeting planned targets should not be merely to replan downward for the coming year, but to try to determine the reasons for the discrepancy, i.e., to establish causality. Was it merely because we were over-optimistic in our projections? Were inputs not received on time? Was there a planning assumption we failed to consider, or that proved to be not valid?

We try to divide the answers to this question "why?" into two distinct categories. The first contains those causative factors that appear to be

random, not likely to occur again, and that we have little chance of predicting or controlling. A flood, a freak variation in weather patterns, a dock strike that tied up a shipment for three months or a fire that destroyed a printing press may fall into this category. These are dutifully recorded.

The second category contains those causative factors that appear to be persistant or reoccuring, factors that may indicate that the project itself should be replanned. In this category fall such examples as: an invalid assumption of the causative relationship between studies completed and resultant investment, lack of interest on the part of project-related personnel, evidence that key aspects of the project do not conform to cultural norms or values, or a strong personality conflict between the directors of two institutions that have to coordinate their contribution to the project. These types of problems need to be analyzed very carefully, and must be resolved if the project is to succeed.

The structured evaluation worksheets provide a convenient and consistent check on routine problems of project monitoring and implementation. They also provide a basis for more in-depth probing of the project. The worksheet on commodities, for example may record that paper for printing textbooks was late in arriving, causing a delay in printing. What caused the delay? Should we start orders sooner? Can the government simplify its bidding and contracting procedures? What actions would assure that we do not run into the same problem next year? Should we use this supplier again or look for another?

The evaluation worksheet on cooperating country performance on the Industrial Development project, for example, showed that there was a high turnover of project leadership and staff, that salaries were low compared to private industry, and that the budget for CENDES had not increased

sufficiently to allow full staffing or a full level of operations. These three problems seemed to be interrelated. Our analysis therefore addressed the questions: what is the significance of these problems, why are they occuring, and how can they be resolved?

The Evaluative Review

After all of the evaluative data has been collected and analyzed, and the evaluative implications and issues identified, the Mission Evaluation Officer prepares two documents. The first is an issues paper (such as the one shown in Figure 5) which is designed to convey the important findings of the evaluation for the evaluation review. The second is a draft of the Project Appraisal Report (PAR), which is eventually approved and submitted to AID/Washington. (Figure)

The purpose of the issues paper is to, first, characterize the current status of the project and, second, to direct discussion toward those factors which have been identified as significant to project success or failure. Usually we try to avoid suggesting solutions or courses of action in the issues paper. Neither do we list "Actions required" on the first page of the PAR prior to the evaluation review. These are expected to come out of the review.

Figure 5. Sample of Issues Paper Used in Evaluation Review of Primary Education Project

TO: Primary Education Evaluation Committee

FROM: Evaluation Officer

SUBJ: Issues for Evaluation Review

The evaluation leading to the draft PAR has raised a number of substantive issues.

A. Concerning the Ministry of Education (MOE):

1. The MOE continues to be plagued by a high level of personnel turnover at the higher levels. This has delayed the implementation of a number of key changes necessary for the project.

2. Considerable delays are still being encountered in bidding and contracting for the printing of textbooks. It appears that the completion date of the project will have to be extended.

3. Writers have generally shown a lack of interest in or concern with the problems of rural education and the problems of teachers in using the new textbooks.

B. Concerning the Contractor:

1. The contractor has found it difficult to get the writing staff to meet its time schedule. USAID/E had to become directly involved to get the teachers' guides developed on time.

2. The project managers feel that the contractors have placed too much emphasis on maintaining friendly relations with their counterparts, at the expense of firmly recommending actions the MOE should have been taking to ensure the timely progress of the project.

C. Concerning Teacher Training:

Although teacher training was dropped from the original grant/loan project, a recent evaluation of the textbook program showed that there was no correlation between use of the new textbooks and improved scholastic performance. It was decided that this lack of correlation could be due to the inability of the teachers to use the new books properly. Therefore, the teacher training element should be reinitiated.

D. Basic Issue of School Construction:

Considering the limited number of classrooms that can be built under the A.I.D. loan, the greatly increasing classroom deficit in Ecuador, and the difficulties of the Ecuadorean Government in providing adequate counterpart for school construction, leads to an important issue:

> Is it possible to formulate a school construction program to produce classrooms which are (a) adequately constructed and equipped to enhance the quality of education and, at the same time, (b) sufficiently low cost to maximize student enrollment.

Figure 6

I. NEW ACTIONS PROPOSED AND REQUESTED AS A RESULT OF THIS EVALUATION				
A. ACTION (X)			B. LIST OF ACTIONS	C. PROPOSED ACTION COMPLETION DATE
USAID	AID/W	HOST		
x		x	Adequate statistical gathering and evaluation systems should be established within the cooperative federations and baseline data gathered	August, 1972
x		x	Adequate output targets need to be established for FECOPAM	July, 1972
x		x	Projections and plans for self-financing and capitalization are required for both federations	August, 1972
x		x	Feasibility study for FECOPAM is required	December, 1972
x		x	Feasibility study for FENACOOPARR rice mill operations is required	October, 1972
x		x	Feasibility study of national farm supply cooperative organization is required	September, 1972
x		x	Evaluation of FECOPAM marketing operations is required	October, 1972
x			Submit revised PROP	

Evaluation findings can be reviewed internally by the donor when the purpose of the review is to consider operational matters of interest only to the donor. Where the evaluation process is intended to inform host country officials, or to induce changes in project operations, joint participation at all stages of the evaluation is preferred. This Mission has followed both approaches. The Mission's view of joint evaluations is summarized in the following extract from a report of a recently completed evaluation of a Directed Agricultural Production credit program in Ecuador.

It is our belief that the most important result of this evaluation derives from the way it was conducted. In 1969 USAID/Ecuador financed a similar study of the DAPC program. That study amassed a considerable amount of data and arrived at rather significant conclusions, many of which have been supported by this study. However, because it was conducted from the USAID office, with scant participation by FECOAC (the Credit Union Federation), the study was never given serious consideration by the Federation. It became, in essence, another study that sat on the shelf.

The present study was conducted differently. It was designed in close cooperation with FECOAC. The USAID-funded contractor worked in the FECOAC office. FECOAC assigned personnel to all stages of the evaluation -- design, pre-testing, data collection, analysis, report writing, and post-evaluative discussions of the conclusions. It even funded the data collectors (through funds provided by USAID) and considered itself responsible for them. The result has been that FECOAC considers the evaluation to be its study, identifies fully with it and its conclusions, and is taking positive steps to implement the recommendations. This has been the greatest value of the evaluation.

Follow up

Once the PAR is completed and approved, it is the responsibility of the Program Office to monitor progress on assigned actions. This is done by periodically issuing the memorandum shown in Figure 7, followed by a Program Office review of progress with the project manager and contractor.

Figure 7.

MEMORANDUM

TO : Project Manager

FROM : Program Officer

SUBJECT: Status of Required Actions Listed in FY 1972 PARs

1. On the front page of the PAR for your project, _____, dated _____, a number of actions were listed as necessary for the successful development of the project.

2. Those actions which should have been completed by now for your project are listed below.

3. Please inform the Program Office, by memorandum, what steps have been taken to implement these actions and what is their current status.

PART II: ISSUES AND PROBLEMS

In applying the Logical Framework matrix during the past two years, I have encountered a number of issues and problems that newcomers to the methodology might also encounter. These are discussed below in the hope that such a discussion might be useful to others attempting to use the methodology.

Adaptability of the Matrix

The matrix is adaptable and can be modified to meet the particular requirements of a project design. As you will note in the preceding section, I added a "Sector Goal" row to the matrix because of the nature of the project and its relation to higher order goals. As a general principle, the matrix should be adapted to fit reality rather than reality distorted to fit the artificial constraints of a four by four matrix.

Other variations in the matrix form, within limits that do not destroy its basic integrity and purpose, may further improve its utility. I prefer to add a fifth column to elaborate the targets in quantitative and annual terms where possible. (See later in this section.) Another work group added a column of "means to verify assumptions." The Latin American regional evaluation officer at one point recommended the inclusion of <u>two</u> sub-goal rows because "... over time the project would successfully reduce each of the sub-goals to the purpose row." Other variations are possible, so the project designer or evaluator should not feel limited to a four by four set of relationships if a different format is more practical and useful.

Developing the matrix

A second tautology is that a "logical framework" arrived at by "illogical" means is not "logical." I prefer not to use the logical framework matrix in

the very early stages of project formulation or design clarification because its structure may tend artificially to limit consideration of the full range of project circumstances and veriables to a four by four set of relationships. It is important, in the early stages of project formulation, to avoid disfunctional rigidity and unnecessary constraints while one is exploring the various options of design as well as the nuances and critical linkages in the project itself.

To understand the project situation sufficiently to plan or to evaluate it may require that it be conceptualized as a complicated system of means-ends relationships, involving primary inputs, intermediate inputs, intermediate outputs, outputs, purposes, subsector and sector, goals, intermediate program objectives and ultimate program objectives.

Once this elaborated set of means-ends relationships is displayed in the early design (or design clarification) phases -- and the project is understood -- then the matrix becomes a valuable tool for simplifying and aggregating the structure of the project so its internal logic can be examined.

Project Purposes

Another issue lies in the assignment of importance to alternative levels of objectives of a project. (I say levels because, as the preceeding discussion illustrated, a project is not always a simple set of inputs-outputs-purpose-goal, but may be a lengthy series of means-ends relationships that are aggregated and compressed into four, or more, rows in the matrix).

It should be apparent from looking at a logical framework matrix that the project purpose level is the most important level of the matrix. The goal level presents an external orientation which accomplishing the project purpose should further, but over which the development project administrators have little direct control. All inputs are directed toward producing

outputs which are essential for realizing the project purpose. More important, the project purpose is accomplishable, and it is the responsibility of the development project administrator to see that it is accomplished.

One of the most frequent problems we have had in defining project purpose within the matrix has been a continually recurring argument between proponents of an institution-building focus and those who advocate the results of the institution, i.e., production of goods and/or services, as the purpose. Is the purpose of a project to eradicate malaria, for example, or is it to develop a competent, well-functioning malaria eradication team? Is it to lower the birthrate or to develop an institutional framework that will promote and provide family planning services?

In each of the above examples few people would disagree on the means-ends relationship, i.e., that the objectives result from successful institutions. The malaria team is a means to eradicate malaria; the family planning infrastructure is a means to lower the birthrate.

The central question is which of these is the primary reason for the project within the context of the development program, for that one should be placed in the purpose level of the matrix.

Under ideal circumstances the project purpose can be analyzed as a predictable function of the nature and amount of inputs. A $250,000 per year technical assistance grant project to two institutions will not produce $40,000,000 in new investment as a direct purpose, although it may develop the capability of those institutions to attract that amount of investment in the future. A $4,000,000 malaria loan, which provides vehicles, DDT, spraying equipment and travel expenses, when coupled with

personnel provided by the host government, may well eradicate malaria in a country as small as Ecuador. Surprisingly, however, many projects are not so clearly defined. Many, in fact, include elements of both types of projects -- building an institution as well as concern for immediate production of goods and services. For example, a textbook program may aspire to both develop an institutional capability to produce textbooks and at the same time produce a certain number of textbooks during the implementation life of the project.

From my own experience I believe that in such a situation the choice between the two alternatives should be based on the significance of the immediate objectives within the time limits of the project, contrasted with the need for some type of continued activity to achieve significance. Let me use the two examples I have alluded to in this section.

1. In Ecuador we financed a loan project for malaria eradication. The project plan assumed that it was possible to eradicate malaria within the time frame of the project, or at least reduce the incidence of malaria so that only a limited maintenance program would be required. The project helped develop an institution to carry out the large eradication program, but it was not necessary to have a strong, continuing institutional capability after the end of the project. Therefore, the defined purpose of the loan was to eradicate malaria, not build a National Malaria Service.
2. In the case of the population program in Ecuador, estimated available resource inputs could be expected to reduce the annual crude birthrate from 45/1000 to 40/1000 by the end of project. But population pressures in Ecuador are such that a reduction in the birthrate would not have a significant developmental consequence until it further declined to

30/1000 or 25/1000. The 40/1000 reached by the end of project would be relatively insignificant given the magnitude of the problem. The present population project, therefore, is significant only if a massive host country program of family planning information and services continues indefinitely beyond the end of project. In this case the primary result expected of the project is the establishment of institutional systems capable of continuing to provide substantial family planning services in Ecuador. Thus the development of the institutions and their services, became the project purpose.

Establishing Tragets

As noted earlier, one of the most important aspects of project design is that explicit and precisely detailed targets be set at the output, purpose and higher goal levels at the outset. Subsequent evaluation establishes the difference between these original targets and actual results, and further, leads to the all-important question of "why" that difference occurred. Knowing that a difference exists allows, in fact forces, us to examine and explain the difference. Was it because our assumptions were erroneous? Were we simply over-optimistic? Did we overlook some important element in the original design? Was some crucial input not provided? Most important, what is the implication of the discrepancy for the future success of the project?

These types of questions can only be explored if explicit targets (no matter how arbitrary) are established at the start. In their absence there is no way to measure progress and little impulse to reconsider design.

This is the major reason that I have suggested adding a "targets" column to the regular matrix: it forces the project planner to establish specific,

verifiable targets at all levels of the project. This is especially important at the goal and purpose levels, where targets tend to be stated in general terms. At the goal level, the "Objectively Verifiable Indicators of Goal Achievement" are the types of changes that will occur as a result of this project, and the "targets" are the specific amounts of change which this, and only this, project will produce. This forces the project managers to determine what impact the project is having rather than report broad macro-indicators and statistics that convey no knowledge of the effects of the project itself. At the purpose level the "Targets" represent a progression toward conditions expected at the end of project. In the case of an institution-building project, the "Objectively Verifiable Indicators" measure desired levels of institutional performance (allowing the question "are these necessary and are they sufficient?"), while the annual targets allow the evaluators to assess the rate of progress toward those performance levels (will the institution be at end-of-project status levels by the scheduled end of project?) The same consideration applies to projects that have more quantifiable objectives (e.g., production of --) as the stated project purpose.

Design-Testing vs Progress Evaluation and Implementation Monitoring.

At some point in the use of the logical framework it will become apparent that there are differences in the treatment of a matrix that is to be used for project monitoring and evaluation and one used to clarify the project design. To test or clarify the design of the project the matrix should incorporate only the bare essentials of the project. If it includes too much information, one may find it difficult to escape semantic obfuscation and focus on the causative linkages within the project.

At a later stage, when the logical framework is used as a guide for monitoring and evaluation, the data in the matrix should be as complete as possible. Enough indicators for comprehensive coverage should be listed, and explicit targets established in detail at all levels.

Assumptions

Unfortunately, the assumption column of the matrix is the one that frequently receives the least attention. Yet the implicit or explicit assumptions of a development project are often the factors that determine its success or failure.

As a general working definition of "assumption," I favor one such as "an assumption is any event that must (or must not) occur, or any condition that must (or must not) exist for the stated causal linkage between any two levels of the matrix to be valid." If we look at the Industrial Development matrix and the explanatory text earlier in this paper, we can see several examples of this type of relationship.

Any list of assumptions is seldom exhaustive, and many assumptions may appear overly obvious, but as a general rule it is better to list too many assumptions than too few. Only when an assumption is listed is it likely to be examined for validity (one work group using the matrix system even suggested the addition of a fifth column to the matrix -- "means of verifying assumptions"). And surprisingly, many assumptions, once made explicit, are found to be manageable within the scope of the project. Unless they are identified, however, they seldom are manageable.

One final observation on assumptions is that too frequently we tend to overlook behavioral assumptions. As alien technicians in a developing country we often assume that host country people react the same way we do to a certain stimulus or situation. Unfortunately, many technically sound

development projects have had disappointing results because they failed to take into account the distinct cultural values and behavior patterns of the recipient population.