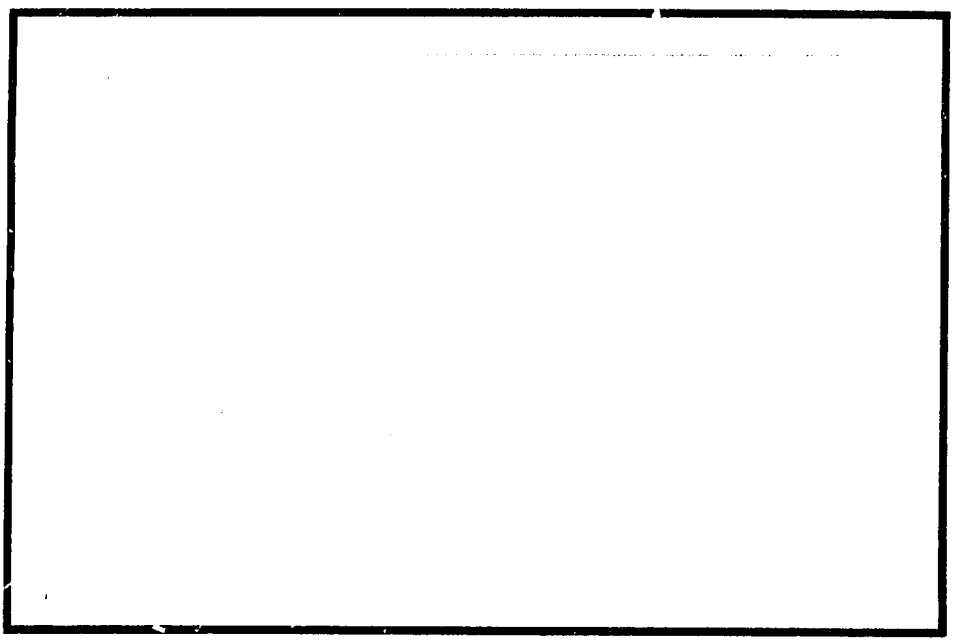

# PRITECH

Technologies for Primary Health Care

Management Sciences for Health
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PN-ABS-[illegible]

# SUSTAINABILITY TASK FORCE MEETING

## PRITECH

A Report Prepared By:
SCOTT ENDSLEY

During The Period:
FEBRUARY 8, 1991

TECHNOLOGIES FOR PRIMARY HEALTH CARE (PRITECH) PROJECT
Supported By The:
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PROJECT NO: 936-5969

AUTHORIZATION:
AID/S&T/HEA: 8/27/91
ASSGN. NO: ECP 005-IR

**SUSTAINABILITY TASK FORCE MEETING**
PRITECH
FEBRUARY 8, 1991
9:00 a.m. - 1:00 p.m.

| **PARTICIPANTS:** | | |
|---|---|---|
| | Thomas Bossert | (University Research Corp.) |
| | Jane Brown | (PRITECH) |
| | Scott Endsley | (PRITECH) |
| | Lloyd Feinberg | (A.I.D./S&T/H) |
| | Elizabeth Herman | (PRITECH) |
| | Martita Marx | (PRITECH) |
| | Katherine McDonald | (U.S.A.I.D./ Bangladesh) |
| | Robert Northrup | (Brown University) |
| | Glenn Patterson | (PRITECH) |
| | Robert Simpson | (PRITECH) |
| | Peter Spain | (PRITECH) |
| | Al White | (PRITECH consultant) |

## BACKGROUND

Sustainability is considered by many, including A.I.D., as an important component of long-term success of development programs. However, it is an elusive concept to define and evaluate, particularly for health programs including control of diarrheal diseases (CDD) programs.

PRITECH is mandated by its contract with A.I.D. to perform a sustainability study. Acknowledging the difficulties in evaluating sustainability, PRITECH seeks to identify the determinants and their indicators of sustainability for national CDD programs in order to build these factors into programming strategies.

PRITECH convened a task force on sustainability to assist in the definition of sustainability for CDD programs, to identify the relevant determinants of CDD program sustainability, and to obtain agreement on the proposed PRITECH approach which would integrate selected sustainability indicators into periodic country program reviews rather than conducting a separate study of sustainability. (See Attachment 1 for agenda.) This task force was composed of experts in CDD programs, and in sustainability. Discussions were guided by an "issues and options" paper by PRITECH which outlined three key issues and presented a proposed approach to assessing sustainability in PRITECH-supported CDD programs (see Attachment 2 for Issues and Options paper).

## DEFINITION OF CDD PROGRAM SUSTAINABILITY

PRITECH proposed that the A.I.D. definition of sustainability was a reasonable definition. In it, sustainability is defined as "the ability to deliver an appropriate level of benefits for an extended

period of time after major financial, managerial, and technical assistance from an external donor is terminated". It was agreed that this definition does not fully address the complexity of sustainability of CDD programs.

It was suggested that a three tiered conceptualization of national CDD efforts would be more appropriate. The top tier would be the ultimate goals of CDD efforts to include reductions in diarrheal morbidity and mortality. The second tier includes those performance factors which directly lead to reduced morbidity and mortality. These encompass specific behavioral changes of caretakers in the home, and of health practicitioners. The third and bottom tier includes those activities of the national CDD program and others which directly or indirectly impact on the behavior change factors in tier 2.

In evaluation terms, these three tiers are comprised of outcomes, outputs and inputs, respectively. Fig. 1 illustrates this conceptual model. It was proposed that sustainability indicators be identified for each of these tiers.

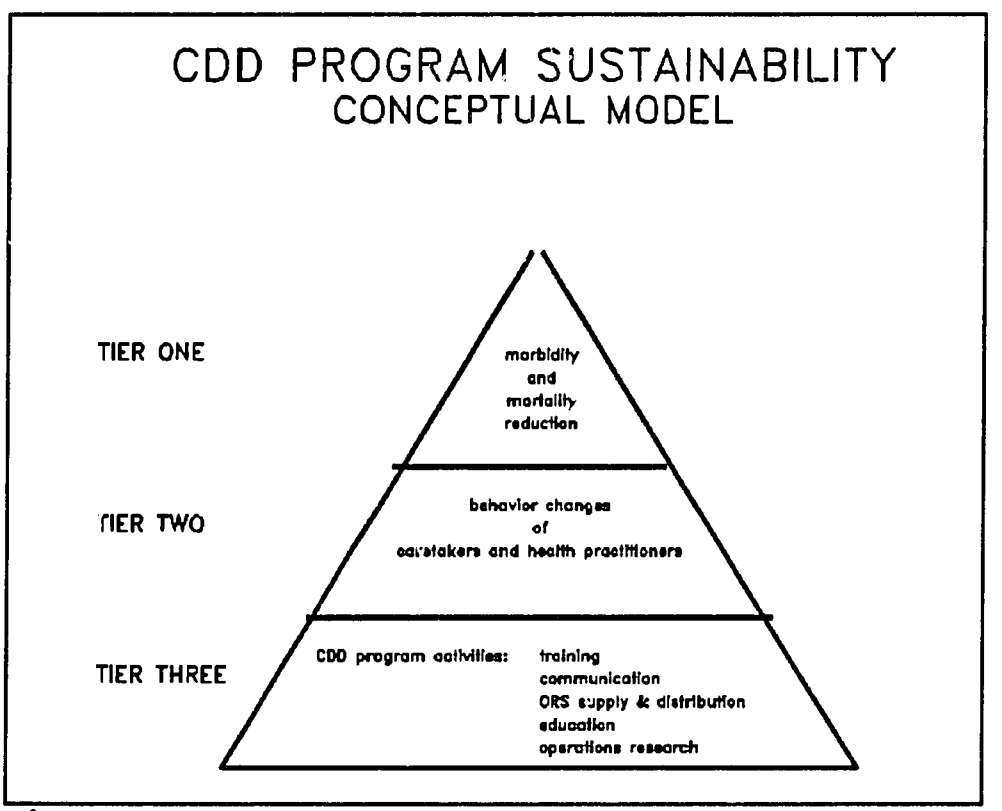


**Figure 1**

DETERMINANTS AND INDICATORS

A. Determinants: Following Bossert's division of program determinants into context factors and project characteristics, the task force felt that focus should be placed on program characteristics which are amendable to change. It also recommended that the definition of sustainability not be limited to the ministry of health CDD program but to CDD as a whole. Adapting from work done by Bossert in the A.I.D. five country study, and from Cross's recommendations in the PRITECH II mid-term evaluation, PRITECH proposed four determinant categories: **MANAGERIAL/INSTITUTIONAL**, **FINANCING**, **PROGRAM OUTPUTS**, and **PROGRAM EFFECTIVENESS**. A fifth category was recommended which dealt with **PRIVATE SECTOR** activities.

B. Indicators: This portion of the task force meeting occupied the majority of discussion. PRITECH had proposed 12 indicators distributed through the four proposed determinant categories which had been drawn from a longer list of 28 indicators. Though the discussion kept largely within the five determinant categories, this part of the task force was a "brainstorming" session which identified potential indicators or modified indicators for further consideration. Listed below are some of the suggested indicators proposed by the task force members. Many of these indicators are expressed in rough, "question-like" form which will require further refinement to be usuable as an indicator.

1. **Managerial/Institutional/Policy**

policy on community and facility treatment
policy on local ORS production standards
policy on ORS price controls
regulation of commerical ORS production & marketing
integration of CDD with other child survival progs.
- integrated MIS/HIS
- integrated training
- integrated supervision (common checklist)

defined CDD program located within MOH
presence of CDD program manager and staff
decentralization of activities (provincial indicators)

2. Private Sector

commercial sector interested in ORS

- ORS sales
- marketing studies performed
- detailing done for ORS

presence of social marketing firms active in ORS promotion

subsidization of efforts
- percent
- by whom

cost of ORS/ price control
professional associaiton training

3. Financing

% of CDD budget covered by government and/or cost recovery
% increase of line item budget over time
volume of sales:
- ORS
- antidiarrheals
- antibiotics

breakdown of CDD program costs
- recurrent costs
- program development costs

4. Program Effectiveness

increased ORS demand by consumers
repeated ORS use (consumer panels)
effective use rate
antibiotic/antidiarrheal use rates
appropriate feeding during diarrhea
gap between desired and actual ORS use rate
cultural acceptance of ORS by mothers
perceived effectiveness by decision-makers
% correctly rehydrated in facilities

## PROPOSED PRITECH APPROACH TO ASSESSMENT OF SUSTAINABILITY

As outlined in the "issues and options" paper, PRITECH proposed to develop a minimal list of sustainability indicators which could be easily and routinely collected as part of the PRITECH country review process. As indicated above, the original proposal listed 12 indicators distributed through four determinant categories. The objectives of this data collection method would be to:

1. establish current inventory of each PRITECH sustained country program's sustainability status.

2. provide semi-quantitative basis for cross-country comparison.

3. provide basis for replanning and policy discussions with current programs, and for planning and policy setting of new country programs.

However, the PRITECH contract mandates that PRITECH conduct a sustainability study. The task force recommended against conducting a separate study but instead recommended that sustainability assessment be incorporated into regular evaluation efforts. PRITECH's cognizant technical officer (CTO) agreed with this recommendation. Thus, there was agreement that the proposed PRITECH approach would be preferential to conducting a formal sustainability study. Several potential dangers to such an approach were identified:

1. assessment of sustainability might get "lost" in other evaluation activities.

2. focus on sustainability might inhibit program innovation.

It was suggested that PRITECH use other mechanisms such as workshops tc highlight the importance of sustainability issues for PRITECH and country CDD staff.

**SUMMARY**

The following are the general outcomes of the task force meeting:

1. PRITECH should not conduct a separate sustainability study but rather incorporate the collection of sustainability indicators into its routine evaluation strategy.

2. the definition of sustainability should incorporate three tiers: outcomes (morbidity and mortality reductions), outputs (behavior changes of caretakers and health care providers), and inputs (CDD program and private sector activities) and should focus on the entire CDD effort, not just the MOH CDD program.

3. the proposed determinants (Manageral/Institutional, Financing, Program Outputs, and Program Effectiveness) should be augmented by Private Sector indicators.

4. additional indicators identified during the meeting and others to be subsequently developed should be considered for inclusion in the assessment tool developed by PRITECH.

The next steps will be:

1. compilation and selection of sustainability indicators.

2. review of indicators, particularly concerning financing and private sector, by task force members with appropriate revision.

3. inclusion of indicators in the overall PRITECH country profile instrument to be collected on an annual basis. The first trial of this instrument to be done June - August 1991.

Attachments to the task force meeting summary:

Attachment 1: Sustainability Task Force Meeting agenda

Attachment 2: Issues and Options paper

ATTACHMENT 1

**SUSTAINABILITY TASK FORCE MEETING**
**The PRITECH Project**
**February 8, 1991**

## AGENDA

## PARTICIPANTS:

T. Bossert (University Research Corp.)
J. Brown (PRITECH)
H. Cross (Urban Institute)
S. Endsley (PRITECH)
L. Feinberg (AID/S&T/H)
E. Herman (PRITECH)
M. Marx (PRITECH)
K. McDonald (AID)
R. Northrup (Brown University)
G. Patterson (PRITECH)
R. Simpson (PRITECH)
P. Spain (PRITECH)
E. Wadolkowski (AID)
A. White (consultant)

| | | |
|---|---|---|
| 9:00 - 9:15 | Background | M. Marx<br>R. Simpson |
| 9:15 - 9:45 | Definition of Sustainability | M. Marx |
| 9:45 - 10:45 | Determinants & Indicators of Sustainability<br>- categories<br>- Managerial/ Institutional<br>- Financial | S. Endsley |
| 10:45 - 11:00 | Coffee Break | |
| 11:00 - 11:45 | Determinants<br>- Prog. Outputs<br>- Prog. Effect. | S. Endsley |

| | | |
|---|---|---|
| 11:45 - 12:00 | Summary of Indicator Selection | M. Marx |
| 12:00- 12:45 | Proposed PRITECH Approach | S. Endsley |
| 12:45 - 1:00 | Summary & Remaining Questions | R. Simpson |
| 1:00 - | LUNCH | |

Table 1: Sustainability Indicators

Managerial/ Institutional

1. program manager assigned and functioning in position for three consecutive years.
2. national policy with objectives and targets approved.
3. ORT taught in medical and/or nursing schools.
4. ORS access rate.
5. affordable access to channels of communication.

Financing

6. line item for CDD program in MOH budget
7. proportion of ORS imported/ ORS locally produced.

Program Outputs

8. % of target attained for case management training.
9. % of target attained for supervisory skills training.
10. home case management policy established.

Program Effectiveness

11. effective ORS use rate.
12. % cases correctly rehydrated in facilities.

# ISSUES AND OPTIONS FOR THE ASSESSMENT OF SUSTAINABILITY OF NATIONAL CONTROL OF DIARRHEAL DISEASES PROGRAMS

## Introduction

Sustainability is considered by many, including AID, as an important component of long-term success of development programs, including health programs. It is, however, an elusive concept to define and evaluate. What is sustainability, what are its determinants and how can it be promoted within development programs has been the focus of considerable attention in the development literature over the past several years.

AID has recognized the potential importance of sustainability for health development programs and has undertaken a five country study in Latin America and Africa to help delineate what are the crucial elements for sustainability. The methodology included as Annex E has divided the potential factors into context and program factors which are listed in Annex A. Context factors are those factors which are outside of the national program's control while program factors are those which may be changed to enhance sustainability. PRITECH acknowledges that assessment of sustainability of health programs in general and diarrheal disease control (CDD) programs in specific is a naiscent field with many uncertainties both conceptual and methodologic. Nevertheless, PRITECH seeks to identify the determinants and their indicators of sustainability for national CDD programs in order to build these factors into programming strategies.

This brief paper outlines selected issues in sustainability and proposes an approach to assess the sustainability of national control of diarrheal diseases (CDD) programs supported by PRITECH. The principal issues identified are:

* definition of sustainability
* determinants of CDD program sustainability
* methods of evaluating sustainability

## ISSUES

Issue #1: What is Sustainability and What is to be sustained?

There have been many definitions of sustainability offered in the literature on donor-supported health programs. AID has defined it in the 1988 Development Assistance Committee (DAC) report as:

> " the ability to deliver appropriate level of benefits for an extended period of time after major financial, managerial, and technical assistance from an external donor is terminated"[1]

The Combatting Communicable Childhood Diseases (CCCD) Project managed by the Centers for Disease Control has defined a sustained program as one in which:

> " health behavior and status improvements, as well as essential project activities, continue after the end of AID funding and technical assistance; and all local currency and some foreign exchange costs are assumed by governmental or private/ personal sources (rather than by other donors) after AID funding ceases"[2]

Carl Taylor has defined sustainability as:

> " the capacity to maintain service coverage at a level that will provide continuing control of a health problem"[3]

The AID definition which will be the working definition for this paper stresses benefits which may be either outputs or outcomes of the health program. In this definition, levels of benefits and time period are left undefined, assuming a country by country assessment of development (health program) objectives. In the AID five country case study of sustainability, Bossert has defined the time period

[1] OECD, "Sustainability of Development Programs: A Compendium of Donor Experience", 1988, p.3

[2] quoted in " Sustainability of EPI: Utopia or Sine Qua Non Condition of Child Survival?" written by P.Claquin, REACH Project, 1989

[3] quoted in ref.2



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as a minimum of three years post-termination of AID support.[4] This implies that the national programs which are candidates for study are those that have received no donor inputs for a minimum period of time. Is it possible to determine sustainability of programs before termination of support?

The above definitions, however, leave unclear as to what we wish to sustain. Are we talking about sustained reductions in morbidity or mortality? sustained improvement in health behaviors? sustained activity levels of quality program components (management, personnel, supply and logistics)? or sustained levels of financial inputs by the public or private sectors? The answer to this question undoubtedly varies between health programs and between countries and regions of the world, and will determine which indicators and methods are use in evaluation.

A PRITECH field implementation aid[5] suggests that the answer to this question is twofold. First, the "fight against diarrheal diseases" should be sustained which suggests that diarrheal disease programs in whatever form should be maintainable. Second, the "correct use of oral rehydration therapy as the standard treatment of diarrheal diseases" should be sustained, suggesting that ORT is the intervention of choice and that efforts to ensure "correct use" should be sustainable. Both of these domains for sustainability are outputs. Robert Northrup [6], however, suggests that what should be sustained are the mortality and morbidity impacts of diarrheal disease control efforts. These goals can be sustainably achieved through a variety of interventions which must synergistically work together.

**Issue #2: What are the determinants of sustainability ?**

The DAC/AID compendium of donor experience suggests that the principal determinants of whether development programs (including health programs) are sustained include:

* government policies
* managerial factors
* organization and local participation

[4] Bossert,T; "Can They Get Along Without US? Sustainability of Donor-Supported Health Projects in Central America and Africa", Soc.Sci.Med., 1990, 30(9): 1015

[5] PRITECH, "Ensuring Sustainability of CDD Efforts" (original paper written by Glen Patterson)

[6] Northrup,RS; "Sustaining Diarrheal Disease Control", background paper prepared for 1989 NCIH Symposium



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* financial factors
* technology
* socio-culture, environment and ecology
* external political and economic circumstances

Bossert in his examination of sustainability of child survival projects in five AID-supported countries in Central America and Africa suggests that there are two categories of determinants: context factors and project characteristics (see appendix A). As mentioned in the introduction, the context factors are those which are out of control of project management but which directly or indirectly impact on the project. He notes that economic and political stability are important but not crucial for project sustainability. However, the "strength" of the implementing institution(s) is very important. He suggests that if donors are serious about improving sustainability, they need to address institution- building objectives. He further suggests that in unfavorable contexts program objectives should not focus on sustainability. In these unfavorable contexts, moral imperatives dictate support program efforts despite the pessimistic prognosis for sustainability.

Bossert has also identified a constellation of project characteristics which <u>are</u> under some degree of control by program management (see Annex A for full list). Of this group of project characteristics, his analysis has shown that **five** play crucial roles in project sustainability. These five are:

* demonstrated effectiveness in reaching clearly defined goals and objectives.

* integration of project activities into established administrative structures.

* significant levels of funding from national sources during life of project.

* program design negotiated with implementing agency with a mutually-respectful process of give and take.

* strong training component.

The above sustainability factors pertain to health programs in general. Are there specific program factors which influence the sustainability of national CDD programs? The PRITECH field implementation aid on sustainability identifies six categories of determinants which might influence the sustainability of CDD programs:

* factors leading to sustained demand (esp. by mothers)

* factors leading to sustained supply of ORS

* factors leading to sustained appropriate case management practices among health workers

* factors leading to sustained awareness and motivation

* factors leading to sustained political and institutional support

* factors leading to sustained economic support

These six may be regrouped into political, institutional, financial and behavioral categories. PRITECH is not aware of specific examples of national CDD programs which meet the AID criteria. Thus, the above six categories of CDD program determinants or the context and program determinants as suggested by Bossert applied to CDD programs have not been examined to our knowledge, though they all appear highly logical.

**Issue #3: How do we "measure" sustainability?**

Given that neither the definition nor the determinants of CDD program sustainability have been clearly delineated, how does one proceed in selecting indicators and methodologies for assessment? Moreover, given the intercountry differences in program goals and objectives, would standardized sets of sustainability indicators have any utility as an evaluation tool? For instance, would a sustainability scoring system have acceptable validity and reliability both across country and over time? Should the approach to measuring sustainability be qualitative or quantitative? Do methodologies developed to assess the sustainability of other health programs have applicability for CDD programs (for example, Lapham and Maudlin's work on population programs)?

## A PROPOSED PRITECH APPROACH

Given the lack of consensus on the definition and determinants of sustainability of national CDD program efforts, what approaches should be considered by PRITECH to resolve these issues and to assess sustainability? Outlined below is one proposed approach. The objectives of this proposed approach are:

* to identify a minimal list of sustainability determinants and indicators which might be useful in assessment and programming.

* to institutionalize the periodic assessment of sustainability within the program review process.

This approach acknowledges the conceptual and methodologic uncertainties surrounding the assessment of sustainability of national CDD programs.

**Step One: <u>Expert Meeting on Sustainability</u>**

A group of experts in evaluation, especially, sustainability assessment, and diarrheal disease control programs would be convened to address the following issues:

1. definition of sustainability of CDD efforts
2. suspected determinants of sustainability
3. appropriate indicators for periodic assessment

The outcome of this meeting would produce:

1. a consensus definition of sustainability for CDD efforts.

2. an agreement on a priority list of potential determinants and indicators for measurement of sustainability by PRITECH.

3. review and comment on proposed PRITECH approach

**Step Two: Integration of Sustainability Indicators into Program Review Process**

Following selection of appropriate indicators of CDD program sustainability, these indicators would be integrated into the indicators used for an annual CDD program review by the PRITECH country representative and the national counterpart. Collection of data on sustainability in this way will enable trend analysis in sustainability as well as accent sustainability as an important CDD program issue. Moreover, this set of sustainability indicators might serve as a focus of review of sustainability during WHO comprehensive program reviews. Table 1 provides a proposed set of indicators divided into four major areas: managerial/institutional, financial, content factors, and program effectiveness. These are drawn from a larger list found in Annex B.

This program review instrument would be circulated for comment to PRITECH field staff, PRITECH central staff, selected individuals with expertise in evaluation and CDD programs. Following this review process, appropriate revisions would be made and the revised instrument field-tested by the two PRITECH Africa regional representatives. Following subsequent revision, the instrument would then be made available to PRITECH sustained country program representatives for program review. Programs will be encouraged to undertake program review annually, and to serve as the basis for program replanning.

Table 1: Sustainability Indicators

**Managerial/ Institutional**

1. program manager assigned and functioning in position for three consecutive years.
2. national policy with objectives and targets approved.
3. ORT taught in medical and/or nursing schools.
4. ORS access rate.
5. affordable access to channels of communication.

**Financing**

6. line item for CDD program in MOH budget.
7. proportion of ORS imported/ ORS locally produced.

**Program Outputs**

8. % of target attained for case management training.
9. % of target attained for supervisory skills training.
10. home case management policy established.

**Program Effectiveness**

11. effective ORS use rate.
12. % cases correctly rehydrated in facilities.

The selected sustainability indicators could be coupled to a scoring system which would allow semi-quantitative trend analysis.

ANNEX A: LIST FROM AID FIVE COUNTRY STUDY

# SUSTAINABILITY FACTORS

## *Contextual Factors*

Natural disasters
Political factors
US-Host country bilateral relations
Socio-cultural factors
Economic factors
Private sector
Implementing institution
Donor coordination
National Commitment

## *Project Characteristics*

Project negotiation process
Institutional/Managerial factors
    1. vertical vs integrated
    2. administrative leadership
    3. admin.component & training
Financing
    1. national absorption of costs
    2. foreign exchange demand
    3. substitution demand
    4. cost recovery
    5. cost effectiveness
Content factors
    1. project design
    2. training
    3. technical assistance
    4. appropriate technology
Community participation
Project effectiveness

from: Bossert, 1990

## ANNEX B: SUSTAINABILITY INDICATORS

Managerial/ Institutional

1. program manager trained at WHO programme managers course.
2. program manager trained at WHO clinical management course.
3. national policy with objectives and targets.
4. ORT taught in medical/nursing schools
5. % of health facilities with ORTU or ORT corner
6. the following done in collaboration with other child survival programs:
    a) planning
    b) training
    c) supervision
    d) evaluation
7. management information system (MIS) established for:
    a) ORS supply and distribution
    b) training
8. DTU(s) established
9. program manager in position for 3 consecutive years.
10. affordable channels of communication.
11. other child survival programs in MOH with established:
    - training programs
    - evaluation activities
    - supervision systems

Financing

12. line item for CDD program in MOH budget.
13. proportion of ORS imported/ ORS produced.
14. proportion of CDD budget covered by government or fee collection.
15. number of commerical ORS suppliers in country.

Program Outputs

16. % of CMT target attained.
17. % of supervisory skills target attained.
18. ORS access rate.
19. home case management policy established.
20. communication strategy implemented.

Program Effectiveness

21. household survey within last two years.
22. health facility survey within last two years.
23. operations research supported by program within last two years.
24. correct ORS preparation rate.
25. correct RHF preparation rate.
26. correct knowledge of referral rate.
27. effective use rate.
28. % cases correctly rehydrated in health facilities.

ANNEX C: METHODOLOGY FROM A.I.D.-SUPPORTED STUDY IN GUATEMALA

## METHODOLOGY

The primary objective of the series of comparative historical evaluations of sustainability in U.S.-supported health projects is to provide information on how project design and implementation can be improved to increase the likelihood of the continuation of project activities and benefits after U.S. funding is terminated. This effort requires a practical methodology for assessing factors associated with the continuation of activities and benefits of past projects. The secondary objective of this series, therefore, is to develop a methodology for examining sustainability.

### 1. CONCEPTUAL APPROACH

This sustainability study was conceptualized and carried out as a set of parallel retrospective case studies of U.S.-supported projects in the health sector in Guatemala. Health sector projects were defined to include those in health services, family planning, malaria programs, nutrition, and water supply and sanitation. Because sustainability was defined as the continuation of at least some significant project outputs or benefits for at least 3 years after U.S. funding had ceased, we selected projects for which U.S. funding had terminated by August 1984.

The conceptual framework of the Guatemala study is based on a systems analysis approach, which examines project sustainability within the overall context of the health system in Guatemala, especially the development, delivery, and use of services in the health sector. Each project was examined in terms (1) the conditions in the health sector before the project began; (2) the goals and objectives of the project; (3) the inputs in funds, materials, and technical assistance provided by the project; (4) concurrent activities by the national government and other international donors; (5) the implementation process of the A.I.D. project; (6) project outputs in terms of human resources, physical constructions, and institution building; (7) project outcomes: the health benefits gained by the national population; (8) the status of outputs and outcomes at least 3 years after the project terminated; and (9) longer term and unintended consequences of the project. Outputs that led to an improvement in health and that could be identified as having resulted from project inputs were considered to have been benefits of the project (Blumenfeld 1986).

The series on the sustainability of U.S.-supported health projects is considered to be a pioneering effort requiring

continuing modifications of its methodology as research efforts evolve. However, to maintain comparability across the studies in the series, these modifications are to be refinements of the methodology developed for the first study in this series (Honduras) rather than broadscale changes that would nullify comparability. The Guatemala study took the methodology developed in the Honduras study (Bossert et. al. 1986) as a point of departure and developed it further. The methodology of the Honduras study was itself based on the prior conceptual work of Blumenfeld (1986), Buzzard (1987), Blumenfeld and Pipp (1985), Godiksen (1986), Lieberson (1986), and others.

The Honduras evaluation identified nine major factors as potential influences on the sustainability of Agency for International Development (A.I.D.) projects: national commitment to project goals, project negotiation process, institutional organization of the project, financing, technical assistance, donor coordination, training, community participation, and project effectiveness. For each factor, a set of hypotheses was developed, based on literature reviews and discussions with A.I.D. officials and other informants.

The Honduras study focused on project outputs and outcomes (benefits) in evaluating sustainability. The study differentiated between two types of sustained outputs: immediate outputs, which were achieved during the life of the project and began to provide immediate benefits (e.g., trained personnel, installed wells and latrines) and replicating outputs, the institutions that continued to produce immediate outputs (e.g., the schools that train the personnel or the water and sanitation agency that constructs wells).

In the following section, we describe the advances in methodology that were made during the Guatemala study.

## 2. VARIABLES EXAMINED

### 2.1 Dependent Variables

The Guatemala evaluation further advanced the methodology of the Honduras study by developing a more precise and consistent definition of sustainability--the dependent variable in the study. As the investigation progressed, it became clear that the definition of what constituted continuation or sustainability and the criteria for determining continuation varied from one type of project to another. Therefore, team members responsible for a particular project type (health services, water and sanitation,

malaria programs, family planning, or nutrition) had to determine precisely what constituted sustainability for that type of project. Because most projects contained some elements that were continued and others that were not, it became difficult to draw general conclusions. Each case study attempted to further refine the precision of the criteria used to define project sustainability. However, because there was not enough time to develop a clear consensus on broader criteria that would enable consistent analyses across project types, it was finally decided that the general criterion for determining sustainability would be the continuation of at least one significant element or activity of a project 3 years after the end of U.S. funding.

The focus of our study was the extent to which the outputs and benefits of health projects, not the projects themselves, were continued; that is, the extent to which the information, systems, and practices developed under a project continued to benefit the Guatemalan health sector. However, a wide variety of types of project elements and activities potentially could continue after cessation of U.S. support. We therefore found it useful to categorize these elements and activities to facilitate analysis and discussion. The categories of potentially sustainable project elements and activities listed in Box 1 were found to be useful by several team members in the Guatemala study. They provide a complex checklist for assisting the analyst in considering the potential outputs of each project and evaluating each component separately. However, there was insufficient time for the team to examine the different relationships between these elements and the independent variables (the factors hypothesized to affect sustainability). This is an important area for further development in subsequent evaluations.

## 2.2 Independent Variables

The second major area of methodological advance in this evaluation was the further refinement of the independent variables (factors that were expected to affect sustainability), beginning with the nine that were identified in the Honduras study.

The first major change was to distinguish between contextual variables of the project, which were not under the control of project designers and managers, and project characteristics, which could be manipulated by project designers and managers. This categorization allows for a more complex analysis of each type of variable.

Box 1. Types of Project Elements or Activities That Could Be Sustained

1. Personnel: Specific types of trained personnel (trained through overseas participant training, formal in-country training, and on-the-job training), their employment and activities, and training programs

   -- Are they working in the health sector?

   -- Are they working in the project implementing institution?

   -- Are they working in positions and carrying out activities appropriate to their specific training?

   -- Are they receiving sufficient support to perform their function as planned?

2. Physical Infrastructure

   -- Does it still exist?

   -- Is it being well maintained?

   -- Is it being used by the implementing agency or other institution for its original purpose or for other purpose in keeping with the project or sector objectives?

3. System Characteristics

   -- Are institutions and subsystems still functioning, including training programs established under (or modified through) the project(s)?

   -- Are organizational structures still intact?

   -- Have system capacities been maintained or expanded?

   -- Are functions and activities still being performed, and if so, how effectively and efficiently?

   -- Have resources been allocated to support these efforts?

Second, the evaluation team developed a larger, more detailed set of variables than the nine identified for the Honduras study. Although the expanded set of variables was considered more appropriate for evaluating project continuation, the risk was that the analysis would become too complex to be useful to project managers and designers who often seek short checklists to assist them in their practical decision-making. The evaluation team felt, however, that the expanded set would be a more appropriate basis for drawing conclusions; this set could later be summarized and simplified on the basis of empirical data. The expanded list of variables is presented in Box 2.

## 3. HYPOTHESES

The hypotheses considered in this study were based on the hypotheses developed for the Honduras sustainability study and modified on the basis of the Honduras study experience, a review of A.I.D. evaluation reports and other documents on projects in Guatemala, and extensive team discussions during the first weeks of fieldwork in Guatemala. The modified hypotheses are presented in Table A-1. The table distinguishes between hypotheses that were thought likely to enhance sustainability and those that were thought likely to inhibit sustainability. They reflect the emphases that emerged from the evaluation team's discussions in the field and the working documents.

## 4. DATA COLLECTION AND ANALYSIS

The principal sources of information for this study were documents and selected individual and group interviews. The information obtained was first cross-verified through internal reviews and discussions among team members. It was further cross-verified through an in-country workshop at the conclusion of the fieldwork.

Box 2. Expanded List of Variables Potentially Affecting Sustainability

Contextual factors

- Natural disasters
- Political environment
- Bilateral relations
- Sociocultural influences
- Economic context
- Private sector (including private voluntary organizations)
- Implementing institution
  - Leadership
  - Centralization
  - Integration
  - Skill levels of personnel
  - Goal conflicts
  - Competition among private voluntary organizations
- Other Donors (policies and coordination)
- National commitment to project goals

Project Characteristics

- Project negotiation process
- Institutional organization and management
  - Vertical versus integrated project structure
  - Administrative leadership
  - Administrative systems and training
- Financing
  - National absorption of project costs
  - Foreign exchange demand
  - Demand for a shift in priorities from established programs
  - Cost recovery
  - Cost-effectiveness
- Content factors
  - Project design
  - Training
  - Technical assistance
  - Appropriate technology
- Type of Project
- Community participation
- Project effectiveness

Table A-1. Summary of Hypotheses for the Guatemala Sustainability Study

| Contextual Factors | Decrease the Likelihood of Project Continuation | Increase the Likelihood of Project Continuation |
|---|---|---|
| Natural Disasters | Occurrence of natural disasters | |
| Political Context | Regime instability<br>Low State capacity<br>Military regime | |
| | Low commitment to the welfare of the poor | |
| | Strong interest group opposition | |
| U.S.-Guatemalan Relations | Difficult relations between the United States and Guatemala | Good relations between the United States and Guatemala |
| | Changes in U.S. Government development policies related to the health sector | |
| Sociocultural Context | Marked sociocultural divisions | |
| | Marked urban-rural inequality | |
| | Marked gender inequalities | |
| Economic Context | | U.S. funding ended in a period of economic growth |
| | | U.S. funding ended in a period of public sector growth |
| | | U.S. funding ended in a period of growth of Ministry of Health share of government budget |
| Private Sector and Private Voluntary Organizations | Private sector opposition or competition with project goals and objectives | Private sector support of project goals or objectives |
| | | Private voluntary organizations available to implement project activities |
| Implementing Institutions | Rapid turnover and poor leadership of top officials | |
| | Centralization of decision-making | |
| | Fragmentation of authority and responsibility (relatively vertical, program-determined subunits with little interaction, coordination, and communication among them) | |
| | Low skill levels of personnel outside of the project on whom the project's implementation depends | Personnel selection based on skills, motivation, and job description |

Table A-1. Summary of Hypotheses for the Guatemala Sustainability Study (cont.)

| Contextual Factors | Decrease the Likelihood of Project Continuation | Increase the Likelihood of Project Continuation |
|---|---|---|
| | Personnel decisions motivated by political or patronage considerations | |
| | Conflicts between organizational goals and project objectives | |
| | Competition among PVOs for funds or beneficiaries | |
| Other Donors | | Project components and activities are congruent with health sector policies and activities promoted by international health agencies and donors at the time of continuation decisions |
| | | Availability of donor funds for health projects in the country at the time of project continuation decisions |
| | | Coordination among donors to avoid excessive concentration of donor resources on a single area |
| | | Coordination among donors to provide ongoing funding of project activities |
| National Commitment | | Consensus among important interest groups and decision-makers in the health sector that project goals and objectives are a national priority |

Table A-1. Summary of Hypotheses for the Guatemala Sustainability Study (cont.)

| Project Characteristics | Decrease the Likelihood of Project Continuation | Increase the Likelihood of Project Continuation |
|---|---|---|
| Negotiation Process | Project designed with little consideration for Guatemalan participation and a feeling that project is being imposed by A.I.D | Project negotiations based on mutual respect, leading to consensus on project goals, objectives, and implementation plans |
| Institutional Organization and Management | | |
| Vertical/Integrated Structure | Project organized with vertical implementing units, especially if projects receive preferential funding | Projects integrated into existing national institutions |
| Administrative Leadership | Projects with high turnover among leaders and with incompetent leaders | Projects with stable, well-qualified leadership (both A.I.D. project managers and Guatemalan counterparts) |
| Administrative Systems and Administrative Training | Projects that neither improve the administrative systems of the executing agency nor provide administrative training | Projects that improve the administrative systems of the executing agency and provide administrative training |
| Financing | | |
| National Absorption | Projects receiving high levels of external funding throughout the project lifetime | Projects for which recurrent costs are gradually absorbed by the national budget |
| Foreign Exchange Requirement | Projects imposing repeated and long-term demands for large amounts of foreign exchange | |
| Tradeoffs Among National priorities | Projects requiring large changes in national budgetary priorities | Projects not requiring large changes in national budgetary priorities |
| Cost Recovery | | Projects with capacity to recover a significant portion of their costs |
| Cost-Effectiveness | Projects with high costs in relation to the effectiveness of their outputs and benefits | Projects that use their resources efficiently |
| Content Aspects | | |
| Project Design | | Projects with clearly defined goals and objectives<br>Projects designed with a long implementation period<br>Projects with low total budgets<br>Projects that produce visible benefits and generate significant demand among beneficiaries |

Table A-1. Summary of Hypotheses for the Guatemala Sustainability Study (cont.)

| Project Characteristics | Decrease the Likelihood of Project Continuation | Increase the Likelihood of Project Continuation |
|---|---|---|
| | | Projects that provide for ethnic and gender balances in all aspects of project implementation |
| Training | Projects with technical training components, especially in fields for which the likelihood of later employment was high | Projects without a training component |
| Technical Assistance | | Projects that include a large technical assistance team |
| | | Projects that increase the technical capability of host country counterparts |
| | | Projects with long-term technical assistance (or repeated short-term technical assistance over a long period of time) |
| Appropriate Technology | Projects that use technology inappropriate to the Guatemalan context | Projects that use technology generally considered appropriate |
| Type of Project | Family planning projects | Health services projects |
| | Nutrition projects | Water and sanitation projects |
| | Malaria projects | |
| Community Participation | | Projects that stimulate considerable levels of community participation and respond to community-defined requests |
| Effectiveness | | Projects that have a reputation for achieving objectives with cost effective and efficient use of project resources |

Two of the U.S. members of the team (the team leader and the public health physician) had extensive relevant experience in Guatemala, and one of the family planning specialists had monitored Guatemalan projects for A.I.D. The three Guatemalan physicians on the study team have decades of relevant experience in the Ministry of Health and in international agencies. The information and the contacts that those team members had prior to the study were very important to the development of this study. The nurse educator who carried out a study on the present working conditions of Guatemala's rural health technicians (which involved survey responses of 274 technicians and personal

interviews with 46 technicians in the field and 7 Ministry of Health officials involved in the rural health program) has extensive experience in health and health manpower work in Central America. In addition, the evaluation team's economist worked closely with a former Guatemalan government official who has held high-level positions in several areas that were important to the economic analysis of the projects.

Several computerized searches of relevant bibliographic data bases were performed to obtain bibliographic materials. Study team members also had access to A.I.D. and Regional Office for Central America and Panama (ROCAP) files, the Ministry of Health library, and the libraries and files of some of the interviewees. The principal documents used by the study team were A.I.D. and predecessor agency documents (project papers, project reports, project evaluations, audits), Guatemalan Government documents, and reports of other donor agencies.

Based on the set of hypotheses (discussed in Section 4 of this appendix), the study team developed a list of questions as a guide for conducting the interviews (see Box 3), which were carried out in the United States and Guatemala by individual team members. The leader, who has extensive experience in conducting this type of investigation, observed at least some of the interviews of almost all team members.

Interviewees were chosen from among accessible individuals who had either been involved in a relevant project or were knowledgeable of the project's impact and sustainability or the context in which it was implemented. Most interviews were carried out either person to person or by telephone; others were carried out in small groups.

Based on documentation review and information from interviews team members drafted retrospective case studies in each of the five areas comprising U.S. assistance to the Guatemalan health sector--health services, family planning, malaria, nutrition and water sanitation. Finally, a draft final report was prepared based on a qualitative comparative review of the findings of the case studies, drawing conclusions about the hypothesized relationships between the independent variable and the sustainability of project output and benefits.

These drafts were circulated and a workshop was held where the study's findings were reviewed and discussed in small workgroups and plenary session prior to the team's departure from Guatemala. Workshop participants included Guatemalan Government officials, USAID Mission officials, representatives of other agencies and individuals with relevant expertise. The reports were revised based on this additional source of information.

Box 3. Interview Question Guide

CONTEXTUAL FACTORS

Natural Disasters

1. Were there any major events, such as earthquakes, that influenced project activities and benefits during or after the life of the project?

Political Factors

1. What effect, if any, did a change in government have on the project with which you were associated and its prospects for continuation after A.I.D. funding ended? Please give concrete examples of how changes in the government affected your project.

2. Did you find significant differences in the way different governments treated the project? To what would you attribute variations in treatment?

3. Did you find that various organizations, groups, or important individuals influenced the initiation, implementation, or continuation of the project? Which groups or individuals were the most important and how did they exercise their influence?

Bilateral Relations

1. Were you aware of any way in which the general state of relations between the United States and Guatemala influenced the evolution and prospects for sustaining the project?

2. Were there any significant changes in the project that were believed to have occurred because of shifts in A.I.D. policy or funding? Did these changes affect prospects for project continuation after A.I.D. funding ended?

3. Did you ever feel that changes in the Mission or changes of Mission Director or project officer affected the project and its possible continuation?

Sociocultural Context

1. Did social inequalities (e.g., ethnic, class, gender) influence the effectiveness and continuation of project activities and benefits?

2. Did economic or regional inequalities influence the project?

3. Were there any major social or demographic changes that had significant influence on the project.

Economic

1. Describe the general economic environment that existed before, during, and after the project.

2. Were there any ways in which these factors influenced the design and execution of the project?

3. Was the project modified in any way as a result of these conditions?

4. Were the resources of the public sector in general and the Ministry of Health in particular expanding, remaining unchanged, or declining during this period?

5. Were budgetary priorities within the Ministry of Health favorable to project activities?

Box 3. Interview Question Guide (cont.)

Private Sector

1. Did activities in the private health sector (e.g., doctors, pharmacies, HMOs) affect project activities and benefits? Could the project have taken the private sector into account more effectively?

2. Were private voluntary organizations available for implementing project activities?

Implementing Institution

1. In your opinion did policy, personnel, or organizational changes at the top levels of the Ministry of Health affect the initiation, implementation, or continuation of projects supported by A.I.D.? Can you give examples?

2. What are the effects of changes in the levels of Ministry funding on the project and its continuation?

3. Who is more important to the success and continuation of a project, the Minister or the administrator directly responsible?

4. Did the centralization (or decentralization) of decision-making in the Ministry influence project effectiveness during or after the life of the project?

5. Did lack of communication and coordination among units within the Ministry of Health influence project effectiveness during or after the life of the project?

6. Did the implementing agency have access to sufficiently trained personnel to support important project activities?

7. Were other goals and objectives of the implementing agency (Ministry of Health or private voluntary organization) in conflict with the goals and objectives of the project?

8. Were many private voluntary organizations competing for the same sources of funds and for the same beneficiaries?

Donor Coordination

1. How did the support of international donors for project objectives and activities influence decisions about project continuation?

2. Did the availability of alternate international sources of funds influence decisions on project continuation?

National Commitment to Project Goals

1. Who in Guatemala supported the goals and objectives of the project and who opposed them?

2. Were there major conflicts or debates?

3. How widespread was project support or opposition?

PROJECT CHARACTERISTICS

Project Negotiation Process

1. Describe the process by which the project was negotiated.

2. Who participated in the process?

Box 3. Interview Question Guide (cont.)

3. Was the project a Guatemalan initiative, or was it brought in by A.I.D.?

4. What was the tone of the discussions during the negotiation? Was there mutual respect and give and take?

5. Are there people who view the process differently than you do?

Institutional Organization and Management

1. Vertical Versus Horizontal Design

How was the project administered? Did it have its own chain of authority or was it under the Director General or a regional official?

Could the project have been better integrated into the Ministry of Health?

Were communication linkages open between project officials and officials in the Ministry of Health?

Did the project generate jealousies within the Ministry of Health?

Did the project receive special attention or resources for nurses and physicians (or other equivalent personnel) ?

2. Managerial Leadership

Who headed (or who were the counterparts for) the project during the life of the project?

Did changes of leadership affect the project?

Were project leaders effective managers and promotors of their projects?

3. Administrative Systems and Training

Did the project contribute to administrative improvements in the Ministry of Health (or other agency)?

What happened to people who were trained overseas?

Was training effective?

Financing

1. National Absorption of Project Costs

What percentage of total recurrent costs had the Ministry of Health absorbed by the end of the project?

Were there any differences in the absorption rate for different kinds or cost categories (salaried positions, materials, equipment, training)?

Was it anticipated that alternate sources of funding, such as other donors, beneficiaries, other levels of government, or private voluntary organizations, would continue to finance the project after A.I.D. funding ended?

2. Foreign Exchange Component

Did the project depend on the continuing importation of major materials and supplies?

Were local or regional sources for these imports unavailable or was importation a project requirement?

Box 3. Interview Question Guide (cont.)

3. Tradeoffs Among National Priorities

Would the project reduce the funding available for other Ministry of Health programs, such as curative care?

Were financing requirements and mechanisms at the end of the project essentially the same as those during the project?

4. Cost Recovery

Did the project include means of recovering costs through user fees or other charges?

5. Cost-Effectiveness

Was the project able to achieve its goals without waste and corruption?

Content Aspects

1. Project Design

How clearly defined were project goals and activities?

Were there a large number of beneficiaries, and did they see the benefits as important enough to demand continuation of the project?

Did project design provide for ethnic and gender balance in all aspects of project implementation?

2. Training

What type of training program (on-the-job training, long-term or short-term courses) was included in the project? What was its size? Was it continued after the project funds ceased? How has it changed over time?

Were there sufficient salaried positions for the newly trained workers to assume after their training?

Were beneficiaries trained in project activities?

3. Technical Assistance

What was the role, size, and duration of the technical assistance provided under the project?

Were Guatemalan counterparts trained to take over project activities after the project technical assistance team left?

Was technical assistance acceptable to the national Government during project negotiation and implementation, or was it imposed by A.I.D.?

4. Appropriate Technology

Was the specific technology appropriate for achieving project goals in Guatemala?

Community Participation

1. Was the project successful in developing a high level of community participation? Did the community provide labor and materials? Was a health committee formed? Did the community actually establish priorities for health activities inthe community?

Project Effectiveness

1. Was this project able to achieve its goals and objectives?

2. What was the major achievements and major failures of the projects?

## 7. CONCLUDING ANALYSIS

Based on a comparative review of the findings of the five case studies, this sustainability study attempted to draw general conclusions about the hypothesized relationships between each independent variable and the sustainability of project outputs and benefits.

It was agreed that for the development of this and future studies in this series on the sustainability of U.S.-supported health projects, a more reliable methodology is required to guide the analysis. As a first step in the development of this methodology, the evaluation team prepared the analytical matrix presented in Table A-2.

Table A-2 lists 18 projects,[1] of which 11 had significant elements that were sustained and 7 had no significant continuation. The sustained projects received a "yes" and the unsustained projects received a "no" in the sustainability column. The table also lists the variables (contextual factors and project characteristics) and subelements of the variables (numbers listed below the variables) and rates their significance to the sustainability of each project: Positive effect = +, negative effect = -, no effect = 0, and no information = N.

The first step in the analysis was to determine the total number of testable cases for each variable. Testable cases were defined as the total number of possible cases (18) minus the number of cases for which no information was available (see Total Testable Cases in the table). For example, in the case of the "natural disaster" variable, the evaluation team gave 13 projects an "N," meaning no information was available. Therefore, the total testable cases is 18 minus 13, or 5. Then the team members calculated what percentage of cases had a "no effect" or "0" rating. Again, the "natural disaster" category shows two "0" ratings; that is of the five testable cases, two showed no significant effect on sustainability, or 40 percent of testable cases. All variable receiving 40 percent or more "no effect" rating were eliminated from further analysis. These variables are underlined in the table.

The final step in the analysis was to measure the success of each of the remaining variables in predicting the sustainability outcome of the projects. That is, did the judgment made about the positive (+) or (-) effect of each variable correspond with

[1]The table lists two PL 480 projects that, although researched by one team member, were not included in the final report.

the project outcome (sustained or unsustained)? If a "+" in the variable column corresponded with a "yes" in the sustained column, or if the "-" in the variable column corresponded with a "no" in the sustained column, the correspondence was considered a "hit." Conversely, if they did not match, the correspondence was considered a "miss." The success of each variable in predicting sustainability was then calculated as the ratio of "hits" to the sum of "hits" plus "misses" (i.e., total possible hits). For example, in the case of the "sociocultural" variable, there were 9 "hits" out of a possible 12. If the ratio of "hits" to "possible hits" ("hits" plus "misses") was 70 percent or greater, the variable was judged to be significant in predicting sustainability. These precentages are underlined in Table A-2 (see last row, "Percentage of Correspondences"). Varaibles thus identified were sociocultural; implementing unit, nos., 1, 3, 4, 5 (leadership, integration, skill levels, goal conflict); national commitment; institutional organization and management, nos. 1, 2 (integration, leadership); financing no. 1 (absorption); project content nos. 2, 3, and 4 (technical training, technical assistance, appropriate technology); and project effectiveness.

The judgments presented in Table A-2 are tentative and reflect the evaluations of the team leader and three of the team members who were present at the end of the fieldwork. It reflects their judgment about the importance of each variable for sustainability, not whether the hypothesized relation was confirmed or denied. The tentative analysis presented in this table was a useful supplement to the more qualitative judgments made by the original review process. In many cases, the cross-tabulations presented in this table confirmed the original judgments; in others, it forced a rethinking and reevaluation that corrected mistaken judgments. In still other cases, the quantitative judgments were rejected on the basis of stronger qualitative arguments.

Although this analysis was a useful supplement to the process of evaluating sustainability, it was insufficiently developed during the course of the study for the evaluation team to be able to place confidence in its conclusions. In the future, this methodology should be used from the beginning of a project in order to develop a consensus among all analysts on a quantitative means of testing hypotheses. Various other means of systematizing judgments were also suggested for future analyses, including techniques for developing group judgments, scaling the dependent variable, and weighting the independent variables.

Table A-2. Significant Variables Predicting Sustainability

| | | CONTEXTUAL FACTORS | | | | | | | | | PROJECT CHARACTERISTICS | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Area/Project | Sus-tained? | Nat Dis | Pol Sit | Bil Rel | Soc Cul | Eco Sit | Priv 1 2 | Implementing Institution 1 2 3 4 5 6 | Don Coo | Nat Com | Neg Pro | Institutional Org. and Mgt 1 2 3 | Financing 1 2 3 4 5 | Content 1 2 3 4 | Com Par | Pro Eff |
| HEALTH SERVICES | | | | | | | | | | | | | | | | |
| Rural Health/TSR | Yes | + | - | 0 | + | - | - + | - - - - - 0 | + | - | + | - + - | + 0 + N + | + + N + | + | + |
| Roosevelt Hospital | Yes | N | + | 0 | + | 0 | 0 0 | - - - + + 0 | 0 | + | + | + + + | + - + N - | + + + - | 0 | + |
| SCISP | Yes | N | 0 | 0 | 0 | 0 | 0 0 | - - - + - 0 | 0 | + | + | + + + | + 0 0 N + | - + + + | 0 | + |
| Mobile Units | No | N | 0 | 0 | - | + | 0 0 | - - - - - 0 | 0 | - | - | - N - | - - 0 + - | + N - - | + | - |
| SINAPS/PRINAPS/CAPSVO | No | N | - | 0 | - | - | - + | - - - - - 0 | + | - | + | - + - | - 0 - N + | + + + + | + | + |
| WATER AND SANITATION | | | | | | | | | | | | | | | | |
| Urban SCISP | Yes | N | 0 | 0 | + | + | 0 0 | + - + + + 0 | + | + | + | + + + | + 0 0 + N | + + + + | - | + |
| Urban INFOM | Yes | + | 0 | 0 | + | + | 0 0 | + - + + + 0 | + | + | + | + + + | + 0 0 + N | + - + + | - | + |
| Recent Rural | Yes | N | 0 | 0 | + | - | 0 + | + - + + + + | + | + | + | + + - | + 0 0 + N | + - + + | + | + |
| Rural SCISP | No | N | 0 | 0 | + | + | 0 0 | - - + - - 0 | + | + | + | + N + | + 0 0 + N | + + + + | - | + |
| Recent MOH | No | N | 0 | 0 | + | - | 0 0 | - - - - - 0 | + | + | + | + - - | + 0 0 + N | - - - + | + | + |
| All Latrines | No | N | 0 | 0 | - | N | 0 + | - - N - - 0 | + | 0 | N | N N - | + 0 0 0 N | + - N - | - | - |
| MALARIA | Yes | N | + | 0 | - | + | N N | + + + + + N | - | + | + | + + + | + - 0 N + | + + + + | + | + |
| FAMILY PLANNING | No | - | - | 0 | - | - | 0 0 | - - - + - 0 | N | - | - | - - + | - - 0 N + | + - + + | - | - |
| NUTRITION | | | | | | | | | | | | | | | | |
| Sugar Fortification | Yes | N | - | 0 | 0 | - | - 0 | - 0 N + - 0 | N | - | + | + + - | + - 0 + + | + 0 + + | - | + |
| Corn Hybrid | Yes | N | 0 | 0 | 0 | - | + 0 | N 0 N + - 0 | N | 0 | - | + + - | + 0 0 + + | - 0 + + | - | + |
| Nutrition Planning | No | N | 0 | 0 | 0 | - | 0 0 | - - - + - 0 | N | 0 | + | - + - | + 0 0 0 - | - - + - | - | - |
| PL 480 | | | | | | | | | | | | | | | | |
| School Feeding | Yes | 0 | 0 | 0 | 0 | 0 | N + | - N + N N 0 | + | + | 0 | + N N | + N N N - | + N N N | N | N |
| Food for Work | Yes | 0 | 0 | 0 | 0 | 0 | N + | - N 0 N N 0 | N | + | 0 | + N N | + N N N - | + N N + | + | + |
| COLUMN TOTALS: + | | 2 | 2 | 0 | 7 | 5 | 1 6 | 4 1 6 10 5 1 | 9 | 10 | 12 | 12 11 7 | 15 0 2 8 7 | 14 7 12 13 | 7 | 13 |
| - | | 1 | 4 | 0 | 5 | 8 | 3 0 | 13 13 8 6 11 0 | 1 | 5 | 3 | 5 2 9 | 3 5 1 0 5 | 4 6 2 4 | 8 | 4 |
| 0 | | 2 | 12 | 18 | 6 | 4 | 11 11 | 0 2 1 0 0 16 | 3 | 3 | 2 | 0 0 0 | 0 11 13 2 0 | 0 2 0 0 | 2 | 0 |
| N | | 13 | 0 | 0 | 0 | 1 | 3 1 | 1 2 3 2 2 1 | 5 | 0 | 1 | 1 5 2 | 0 2 2 8 6 | 0 3 4 1 | 1 | 1 |
| TOTAL TESTABLE CASES | | 5 | 18 | 18 | 18 | 17 | 15 17 | 17 16 15 16 16 17 | 13 | 18 | 17 | 17 13 16 | 18 16 16 10 12 | 18 15 14 17 | 17 | 17 |
| PERCENTAGE OF TESTABLE CASES SHOWING NO EFFECT: | 0 | 40 | 67 | 100 | 33 | 24 | 73 65 | 0 13 7 0 0 94 | 23 | 17 | 12 | 12 0 0 | 6 69 81 20 0 | 0 13 0 0 | 12 | 0 |
| PERCENTAGE OF CORRESPONDANCES | | | | | 75 | 54 | | 71 57 71 81 75 | 50 | 73 | 67 | 83 85 69 | 82 67 58 | 61 70 71 70 | 53 | 82 |

CODE: + = Positive Effect; - = Negative Effect; 0 = No Effect; N = No Test