

THE SUSTAINABILITY OF U.S.-SUPPORTED HEALTH,
POPULATION, AND NUTRITION PROGRAMS
IN HONDURAS: 1942-1986

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The views and interpretations expressed in this report are those of the authors and should not be attributed to the Agency for International Development.

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PREFACE

Why are the activities and benefits of some health development assistance programs sustained while others are not? Which contextual factors seem most important for sustainability? Which project characteristics? Do some types of health programs seem inherently unsustainable? How should sustainability be defined and measured? What guidance can we offer policymakers and project and program designers and managers? What type of research is called for in this area?

In 1986, the Center for Development Information and Evaluation (CDIE) initiated a group of studies with special emphasis

on assessing the sustainability of health project and program activities and benefits after A.I.D. funding ends. The decision to conduct these studies followed a prior set of evaluations carried out by A.I.D. in the early 1980s to try to understand more about the impact (the actual effects) of its projects and programs in the health sector. The impact evaluations show clearly that many of those activities had difficulty continuing after outside assistance was terminated. Sustainability has become an important development issue in health (as well as in other sectors) for both lender/donor countries and borrower/recipient countries.

The studies undertaken by CDIE in this area have taken several forms, including literature reviews, syntheses of existing A.I.D. evaluation reports, field studies of single completed health projects, and field studies taking a broad, sectoral, historical perspective. It is into this last category that the present study of Honduras falls. The Honduras study is the first in a planned worldwide series of historical studies.

Since this report was written, CDIE has continued to analyze, research, and refine both the concept of sustainability and the approaches used to explore it. A number of CDIE studies have been completed that shed more light on the area. Other reports are still in progress. In addition, a significant body of related work by other offices in A.I.D., as well as other institutions and lenders/donors, has begun to accumulate which addresses this subject and adds to the issues and the discussion set forth in the Honduras study. This report does not attempt to reflect these recent works, which will be incorporated in a subsequent synthesis report now under discussion in CDIE. The reader is asked to bear in mind, therefore, that we are presenting this report as an important first study and set of findings in one country in the larger effort now in progress, not as the final word on the important issue of sustainability.

SUMMARY

This report is the first in a series of comparative historical evaluations of the sustainability of U.S.-supported health projects.^{1} The central question is: What factors of project design and implementation account for the sustainability of project outputs and benefits after U.S. funding has terminated? To answer this question, a group of consultants and Agency for International Development (A.I.D.) staff developed a new methodology and applied it to a historical field review of all U.S. Government-supported health projects in Honduras since the 1940s.

A.I.D. and its predecessor agencies have funded 17 health projects since the 1940s. These included five projects supported through the Inter-American Cooperative Public Health Service (SCISP), a separate U.S.-run agency that built water systems and health service facilities and carried out antimalaria campaigns from 1942 to 1964. In the 1960s, A.I.D. supported rural water supply programs of the National Water and Sanitation Service (SANAA), efforts to eradicate malaria through the National Service for Malaria Eradication (SNEM), and an ill-fated family planning project. In the 1970s, under the Honduran primary health care initiative -- the Rural Penetration Program -- A.I.D. sponsored the training of auxiliary nurses, a project to provide hand pumps and latrines, and nutrition planning. Since 1980, A.I.D. has provided funding for a new rural water and sanitation project, the multicomponent Health

Sector I project, including related child survival programs (Mass Media and Health Practices, and Changing Maternal/Weaning Practices) and family planning. These programs of the 1980s are ongoing, and thus it is too early to assess sustainability.

Sustainability is a complex and relative concept. We have defined it as the continuation of project outputs and benefits (outcomes) after A.I.D. funding is terminated. We found it useful to distinguish between the sustainability of immediate outputs (e.g., personnel trained under the project or hand pumps and latrines installed during the project) and the sustainability of replicating outputs, that is, outputs that continue to produce immediate outputs (e.g., schools, which can train new nurse auxiliaries, or a construction agency, which can build new water systems). We found that once A.I.D. funding stopped, some immediate project outputs were sustained with national funds, but replicating outputs were usually sustained with funds from other donors.

In focusing on three cases of high degrees of sustainability (auxiliary nurse training, rural water supplies, latrine and pump projects) and three cases with low degrees of sustainability (family planning, malaria eradication, and nutrition projects) the following significant relationships were found.

1. National commitment to project goals was essential to the sustainability of project outputs and benefits. Projects that Honduras did not consider of high priority (e.g., family planning and nutrition) were not well sustained. However, national commitment alone did not guarantee sustainability. One project had high national commitment but was not sustained after the United States and other donors terminated funding.

2. Cooperative negotiations between A.I.D. and the Ministry of Health with regard to project objectives, design, and implementation contributed to sustainability. Conversely, projects viewed as A.I.D.-imposed projects were not well sustained.

3. The organizational design of projects was also important. Vertically organized projects, in several cases, generated institutional resentment that jeopardized project sustainability. Integrated projects tended to be better sustained but at lower levels of effectiveness. A multicomponent matrix organization, which combines several vertical subcomponents with an integrated managerial and planning structure, might provide the basis for achieving and sustaining high levels of effectiveness.

4. Projects that were perceived as effective during the life of the project were more likely to be sustained than projects that were unable to achieve anticipated outputs. However, effectiveness did not guarantee sustainability.

5. Donor coordination was important for sustainability. In addition, projects that receive support from other donors after A.I.D. funding stops are likely to sustain the outputs achieved under the A.I.D. projects.

Other factors were not as clearly related to sustainability. While it was clear that financing of projects is important to sustainability and that the current unprecedentedly rapid growth in A.I.D. and other donor financing of projects in Honduras is likely to jeopardize sustainability in the long term, it was not

clear what characteristics of project financing contributed to sustainability. There was no clear relationship between sustainability and size of A.I.D. funding relative to Honduran contributions to the project, national assumption of recurrent salary costs, cost recovery, or the proportion of the national health budget devoted to hospitals versus primary health care. Similarly, the amount, type, and duration of technical assistance; training components; and community participation were not significantly related to sustainability.

A.I.D. should more clearly define the objectives of sustainability in future projects. It should not expect all outputs to be sustained, nor should it expect all projects to be sustained with national funds alone.

However, if the conclusions of this study are confirmed by other studies, A.I.D. should draw lessons for the design of future projects that can enhance their sustainability. A.I.D. should support projects that have a strong national commitment, are negotiated with mutual respect, and have a matrix organizational structure. A.I.D. should emphasize project effectiveness but should not make effectiveness the overriding concern. Finally, it should avoid duplicating the efforts of other donors but should coordinate a sequence of follow-on support from other donors.

{1}In this report "health" projects include health, population, nutrition, and water supply and sanitation projects.

GLOSSARY

A.I.D.	- Agency for International Development
ASHONPLAFA	- Honduran Family Planning Association (Asociacion Hondurena de Planificacion Familiar)
CARE	- Cooperative for American Relief Everywhere, Inc., a private voluntary organization
Caritas	- A private voluntary organization affiliated with the Catholic Relief Services
CESAMO	- health center, with a medical officer
CESAR	- health post, without a medical officer
CHE	- area hospitals
CONSUPLANE	- Technical Secretariat of the National Planning Council (Consejo Superior de Planificacion Economica)
CRS	- Catholic Relief Service, a private voluntary organization
DVC	- Division of Vector Control (within Honduras's Ministry of Health)
ESF	- Economic Support Fund
GOH	- Government of Honduras

guardiane	-	volunteer community health worker with training in primary care
IDB	-	The Inter-American Development Bank
INCAP	-	Nutrition Institute of Central America and Panama (Instituto de Nutricion de Centro America y Panama)
IPPF	-	International Planned Parenthood Federation
MSH	-	Management Sciences for Health (A.I.D. contractor for Health Sector I project)
ORT	-	oral rehydration therapy
PAHO	-	Pan American Health Organization
PANI	-	National Committee for Children (Patronato Nacional de la Infancia)
PVO	-	private voluntary organization
representante	-	volunteer community health worker with training in community leadership
ROCAP	-	A.I.D. Regional Office for Central America and Panama
SANAA	-	National Water and Sanitation Service (Servicio Autonomo Nacional de Acueductos y Alcantarillado)
SAPLAN	-	System of Analysis of Food and Nutrition Planning
SCISP	-	Inter-American Cooperative Public Health Service (Servicio Cooperativo Interamericano en Salud Publica)
SNEM	-	National Service for Malaria Eradication (Servicio Nacional de Eradicacion de la Malaria)
UNAH	-	National Autonomous University of Honduras (Universidad Nacional Autonoma de Honduras)
UNDP	-	United Nations Development Program
UNICEF	-	United Nations Children's Fund
WHO	-	World Health Organization

Exchange Rate: 1 dollar = 2 lempiras, generally for all years mentioned in the report. All amounts in dollars refer to U.S. dollars.

1. INTRODUCTION

This evaluation focuses on health project sustainability: the degree to which outputs and benefits (outcomes) of U.S. Government-funded health projects¹ were continued in the period up to 5 years after U.S. funding had ceased. The objectives of the evaluation were as follows:

1. To refine the definition of and methodology for examining sustainability in one case -- the Honduran case -- as a basis for future comparative analysis
2. To apply that methodology in a retrospective historical field review of U.S.-supported health projects in Honduras since the 1940s
3. To provide information for the design and implementation of future health projects

This evaluation breaks new ground in several ways. By examining the sustainability of projects, it focuses on an issue of current concern in the Agency, but one that has not necessarily been a major objective of past or current projects. It therefore does not assume that sustainability was an objective of the initial projects. Indeed, some projects, such as the malaria eradication projects of the 1960s, assumed that once they achieved their objectives, project activities could cease and the benefits would continue. It is also recognized that other objectives, such as achieving immediate short-term benefits, might be viewed as more important priorities than the long-term sustainability of project activities and benefits.

Furthermore, although the effectiveness of projects is examined as a factor that might contribute to sustainability, this analysis is not an impact evaluation. In a long-term historical perspective such as this one, the rigor and detail of an impact evaluation could not be achieved -- although we were able to make extensive use of prior impact evaluations. The sources for our study were project reports and evaluations and many interviews with Honduran and donor health officials -- both current and past -- but no original impact research was possible in the time frame of the evaluation.

Sustainability is a relative phenomenon. All projects we examined had some elements that were sustained and others that were not. We found it useful to define two different types of sustained outputs:

In this report "health" projects include health, population, nutrition, and water supply and sanitation projects.

1. Those that were achieved during the life of the project and began to provide immediate benefits to the population -- immediate outputs
2. Those that were designed to continue to produce immediate outputs -- replicating outputs

In other words, there is a difference between sustaining the auxiliary nurse who is trained by the project (immediate output) and sustaining the nursing school that will train new auxiliary nurses after the project ends (replicating output).

A second issue is the source of funding for the continuation of activities. Although it may be an objective of development projects to continue the stream of outputs and benefits only with national funds, governments have often been successful in obtaining funding from other donors in order to continue project activities initiated by U.S. Government funds. With many external donors providing funding for health projects, it is

possible for national governments to continue health activities without having to allocate national funds to the programs.

Successfully sustained projects were defined as those in which a major portion of the immediate project outputs and benefits continued to be effectively utilized and to provide benefits after U.S. funding was terminated. Half of the cases we examined in detail were successfully sustained. Furthermore, all of these projects were sustained with national government funds. The more demanding objective of sustaining the replicating outputs was also achieved in half the cases. However, in only one case were these outputs produced with national funding.

This evaluation developed a framework of analysis and a methodology for examining sustainability in a comparative historical perspective. Based on extensive initial reviews of the issue of sustainability provided to the team, and on advice received in the field and in briefing sessions, we identified nine aspects of the design and implementation of A.I.D. projects that we hypothesized to have influenced the ability of the Honduran Government to sustain programs after A.I.D. assistance had terminated.^{2} The nine factors^{3} are as follows:

1. National commitment to project goals
2. Project negotiation between A.I.D. and Honduran authorities
3. Institutional organization of the project
4. Financing
5. Technical assistance
6. Donor coordination
7. Training
8. Community participation
9. Project effectiveness

Using this framework, we developed a series of hypotheses relating each of these factors to the potential sustainability of project outputs and benefits (see Appendix A for details on methodology). We then examined each hypothesis in six separate case studies of major U.S. Government-supported health projects over the last 45 years. These case studies explored malaria projects and water and sanitation projects since the 1940s; family planning projects since 1965; nutrition projects since 1976; the Honduran Government's Rural Penetration Program, 1972-1978; and the current Health Sector I project. These case studies examine clusters of U.S.-funded projects according to type of project (e.g., malaria eradication or family planning) or period (e.g., A.I.D. projects during Honduras's Rural Penetration Program). Tables 1 and 2 provide a guide to the history of U.S. Government-funded projects since the 1940s.

For each project, we used a systems analysis approach to examine (1) conditions in the health sector before the project began; (2) goals and objectives of the project; (3) the inputs in funds, materials, and technical assistance provided by the

project; (4) concurrent activities by the Honduran Government and other international donors; (5) the implementation process of the A.I.D. project; (6) project outputs in terms of human resources, physical construction, and institution building; (7) project outcomes (the health benefits gained by the Honduran population); (8) the status of outputs and benefits 3-5 years after the project terminated; and (9) longer term and unintended consequences of the project. For the large Health Sector I project now underway, our findings are largely predictive rather than retrospective.

Cases were selected by reviewing all U.S.-supported health projects (see Table 1) and selecting the most salient ones (i.e., most important financially or in terms of their reputation among Honduran informants). The evaluation team and its Honduran counterparts then divided up the cases and researched them, using documents collected in Washington and Honduras and interviews conducted with major informants with knowledge of the Honduran public health program and the role of donor assistance.

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 Table 1. U.S. Government Health Projects in Honduras Since 1942

Allocated Dates	Project (number)	(current US\$)
1943-1965	Assistance to Water Authority (5220009)	231,000
194?-1961	Health and Sanitation (5220023)	1,250,000
1954-1965	Health Training/Education (5220011)	364,000
1955-1967	Health Facilities (5220010)	215,000
1958-1969	Malaria Eradication (2 projects- (5220012; 5220075)	5,147,000
1963-1970	Rural Water Supplies (5220014)	1,050,000
1963-1969	Mobile Rural Health Units (5220034)	561,000
1965-1976	Maternal and Child Health/ Family Planning (5220065)	3,774,000
1976-1981	Integrated Rural Health/Family Planning (5220130)	1,464,000
1976-1981	Nutrition Planning (5220124)	4,179,000
1978-1986	Mass Media and Health Practices (9311018)	3,110,000
1979-1981	Health Planning (5220148)	399,000
1979-1982	Changing Maternal/Weaning Practices (9311010)	3,560,000
1980-1985	Rural Water and Sanitation (5220166)	14,800,000

with participants offering modest changes in fact and interpretation, and helped refine some conceptual issues.

We hope that the framework of analysis and the methodology utilized here can provide the basis for future comparative historical studies. Further, this can lead to the development of a theory of sustainability that can identify the relationships between project inputs and processes, as well as the mediating contextual elements and the degree of sustainability of project outputs, and can establish priority relationships. This study is exploratory both conceptually and methodologically, and therefore its findings should be taken as preliminary steps and as hypotheses to be tested, not as definitive conclusions.

The following report synthesizes the six case studies in order to draw lessons about each of the nine factors believed to contribute to sustainability. Each of the case studies is presented in detail as a separate appendix at the end of this report. It is useful, however, to begin with a brief overview of the Honduran context that has shaped the health sector and the role of A.I.D. in that sector.

2Particularly useful for developing this framework was the work of Buzzard (1986), Blumenfeld (1986), Blumenfeld and Pipp (1985), Godiksen (1986), and Lieberson et al. (1986a, 1986b). 3It should be noted that we considered examining the role of the private sector in sustaining project outputs; however, there was not sufficient information on the Honduran private sector for such an analysis.

2. HONDURAN CONTEXT

The Honduran economy has experienced generally positive economic growth since the 1940s. However, the standard of living continues to be one of the lowest in Latin America. The economy depends heavily on the export of a few primary agricultural products that have erratic markets. The "easy stage" of import-substitution-based industrialization has led to some growth in food processing and textiles for export markets. Although the population density is low, Honduras's potential for agricultural growth is limited by its lack of the fertile volcanic soil present in other Central American countries. Honduras' potential for significant economic growth has been further restricted by the current geopolitical conflict in Central America, which has caused capital flight and decreased private investment. However, this conflict has also led to a rapid increase in foreign funding of the national budget over the last 5 years.

Government activities in Honduras are highly politicized (Rosenberg and Shepherd 1986). Beginning with the dominance of the National Party, established during the Carias dictatorship (1933-1949), and continuing through most of the military governments and the current Liberal Party governments, personalism and party loyalty have dominated government policymaking. The importance of personal patron-client relations within factionalized political parties has made it difficult for governments to develop systematic policies and programmatic directions. It has also resulted in considerable turnover of government personnel, especially at the higher administrative levels. This turnover also makes continuity of programs difficult.

There was only one brief period when personalistic party politics did not dominate the political scene: the reformist military regime of Lopez Arellano and the subsequent military governments (1972-1982). During the first military government, moderate political reform was initiated, but it was cut short by subsequent governments (the health program survived longer than most reforms), and toward the end of the period, personalism and patronage were restored. Although the political system has been only moderately responsive to the needs of the lower classes, it generally has not resorted to the kind of high-level repression seen elsewhere in Central America.

Over time the Honduran Government has grown in size, capabilities, and responsibilities. In the 1940s, when the health sector was dominated by a large U.S.-run health program, the Inter-American Cooperative Public Health Service (SCISP), Hondurans did not have a separate Ministry of Health. The Ministry of Health was established in the 1950s and began to take over the responsibilities of SCISP, which was terminated in 1962. By the 1970s, the Honduran state had grown rapidly and had taken new initiatives in almost all sectors of the economy and social services. The current economic crisis, which has forced the Government to adopt austerity measures, has brought a reduction in state activities and prompted plans to return more of the state-run enterprises to the private sector.

In the 1940s, the Honduran health system operated a series of state-owned hospitals and national and municipal government water systems and conducted sporadic campaigns against malaria and yellow fever. Responsibility for the health sector remained within an omnibus secretariat, the Secretary of Government, Labor, and Social Services. Concern about hemispheric security and defense of strategic resources during the Second World War led to the establishment of SCISP, a major U.S.-sponsored public health program (SCISP 1956). This program was initially funded and administered almost entirely by the U.S. Government, but Honduran funding and leadership were phased in over the 20 years of the program (Pease 1986). This program took responsibility for many of the public health activities in Honduras during the 1940s and 1950s. It implemented major programs in malaria eradication and water and sanitation. These activities formed the basis of two major semiautonomous Honduran Government agencies: the National Service for Malaria Eradication (SNEM) and the National Water and Sanitation Service (SANAA). SCISP also provided scholarships for long-term training of health officials and administrators. It constructed health centers and hospitals, some of which (e.g., the Thorax Hospital) are among the most effective hospitals in service today (Alcerro, Alverado, and Guzman 1986).

In the mid-1950s, the Ministry of Health was created and began to take over responsibility for some of the SCISP programs (Ministry of Health 1959). The transition was not easily accomplished, and competition and resentment between the Ministry and SCISP grew, especially as the Honduran Government assumed a greater role in financing (Ministry of Health 1961). In 1962, the Kennedy Administration decided to reorient foreign assistance to Latin America under the Alliance for Progress and discontinued funding for SCISP. Both vertical programs (SNEM and SANAA) continued as semiautonomous administrative structures under the Ministry of Health, with many of the same Honduran staff.

During the 1950s and 1960s, the Ministry grew in complexity as it developed regional offices and began health planning

activities, while extending coverage into rural areas with A.I.D.-sponsored mobile units (Ministry of Health 1965). A large infusion of national funds came with the National Lottery's National Committee for Children. These funds contributed to the creation of schools for nurses and auxiliaries, as well as to an ambitious hospital construction program (Alcerro, Alvarado, and Guzman 1986). During the 1960s, A.I.D. also initiated one of its first family planning programs (see Appendix D).

The massive malaria eradication campaigns of the 1960s, which had received major support from UNICEF and A.I.D., were successful during their initial phases but their effectiveness began to deteriorate as insecticide-resistant strains of mosquitoes appeared. As both the major donors withdrew their support for the eradication program, SNEM was forced to cut back its program, and the incidence of malaria resurged (see Appendix B).

SANAA, although effective in implementing water and sanitation programs during the SCISP period, allowed those systems to fall into disrepair by the 1960s. However, with A.I.D. support in the 1960s, new water projects were initiated that are continuing to supply water of adequate quality today (see Appendix C).

The 1972 coup brought to power a reformist government under General Lopez Arellano, which undertook a series of initiatives in agrarian reform, natural resources, Government sponsorship of industrial development, and in the social sectors. The Ministry of Health developed a major new program called the Rural Penetration Program (see Appendix F). This program rapidly extended coverage in the rural areas by constructing health posts (CESAR) and health centers (CESAMO), accelerating and reorienting the training of auxiliary nurses and a new class of health worker, the promoters, who were responsible for organizing communities and assisting them in developing water and latrine programs. The promoters and auxiliary nurses worked with community health committees, two types of volunteer workers with training in community leadership (representante) and basic primary care (guardiane), and with trained empirical midwives (CONSUPLANE 1973; Ministry of Health 1976b). Widespread immunization campaigns were initiated during this period. These programs received considerable assistance from the Pan American Health Organization (PAHO), the United Nation's Children's Fund (UNICEF), the Inter-American Development Bank (IDB), and A.I.D. At the same time, with funding from IDB, the Ministry began construction of the large Hospital Escuela and planned the construction of two regional and eight area hospitals (IDB 1977).

A change in the military government in 1978 brought a slowing down of the reforms of the Rural Penetration Program; however, the basic structure endured, and some components of the program -- the training of nurse auxiliaries and the water and sanitation program -- were maintained, largely with continued A.I.D. funding. At the same time, the hospital projects of the IDB loan entered the construction phase and the decision was made to expand the San Pedro Sula regional hospital into a huge 600-bed tertiary-care facility.

Since 1982, when Suazo Cordoba became the first elected president in 10 years and the Central American conflict accelerated, the health sector has been the recipient of increasingly large amounts of foreign funding (see Appendix H). All the traditional donors (A.I.D., PAHO, UNICEF, and IDB) have

greatly increased their support. In addition, bilateral programs of the Swiss, French, Japanese, and other governments have been initiated or expanded. The largest assistance program has been A.I.D.'s Health Sector I, which is a multicomponent program supporting malaria activities, immunizations, diarrhea control, mass media health campaigns, logistics and supply, maintenance, and other activities (see Appendix G). This program provides major assistance in management and planning to each of its subcomponents and is supported by a large technical assistance team. Large water supply programs have also been supported by A.I.D., IDB, and UNICEF.

During this period, the Ministry of Health has been relatively successful in maintaining a cap on hospital spending. All IDB hospitals that were to have been finished during this period were still in the construction phase. However, a new IDB loan has been negotiated to finish the construction, equipping, and operation of the San Pedro Sula hospital, the Comayaguela regional hospital, and three area hospitals. When these hospitals begin operation, their recurrent costs will place a considerable burden on the Ministry's budget. In addition, new legislation passed in 1985 more than doubled the salaries of physicians, placing a further demand on the financial resources of the health sector.

3. EPIDEMIOLOGICAL TRENDS

Honduras suffers from high rates of illness and infant and child mortality that are classically associated with arural, but rapidly urbanizing, very poor, tropical country. The national rate of infant mortality has been declining for some time. Recent surveys (registration through the health system is very incomplete) yield mortality figures of 70 to 85 deaths per 1,000 live births. The decline from 1960 to 1980 was approximately 40 percent (Ministry of Health 1981a, 1984).

Childhood deaths constitute approximately 45 percent of total deaths. Among the most serious childhood health problems is malnutrition, which has been estimated since the first studies in the 1950s to affect 70 percent or more of the population under 5 years old (INCAP 1969). Diarrheal diseases constitute another major infant health problem. It is estimated that children under 5 years of age suffer an average of three episodes a year, which would total more than 2 million episodes a year. Of these, 195,000 episodes were treated at Ministry of Health facilities in 1985.

Gastrointestinal infections are followed by acute respiratory infections as a cause of infant deaths (Guzman 1986). Although the incidence of immunization-preventable diseases (particularly poliomyelitis, diphtheria, and whooping cough) seems to have declined markedly in recent years, sporadic epidemics indicate that such diseases are not yet fully controlled. Tuberculosis, malaria, and low birth weight (indicating maternal malnutrition) remain important factors affecting infant mortality and general health. Malaria was a major cause of death in the 1940s and 1950s and remains a major cause of morbidity today, although the annual number of cases has decreased since 1980 (Guzman 1986, Morazan 1986). Case fatality rates (the ratio of number of deaths per cases of a disease) have declined for measles, diarrhea, typhoid fever, influenza, hepatitis, and amebiasis over the past 25 years. Rates for whooping cough and bacillary dysentery, however, do not appear to have improved substantially (Guzman 1986).

The annual population growth rate was approximately 2.7 percent from 1945 to 1961 and 3.1 percent from 1961 to 1974. It is estimated at 3.4 percent in the 1980s, which is among the highest rates in Latin America. Most of the increase is due to decreases in the mortality rate (Hill 1980).

4. FACTORS AFFECTING SUSTAINABILITY

The following analysis explores the lessons learned for each of the nine factors that are believed to be related to sustainability of project outputs and benefits. Table 3 presents a summary matrix of the six cases by the nine sustainability factors. (Appendixes B-F contain detailed description and analysis of each case.)

It should be noted that the conclusions drawn here, especially in the summaries for each factor, are based on evidence from the Honduran cases we reviewed. They should be taken as hypotheses to be tested in other countries, not as definitive conclusions.

Before examining the nine factors that appear to affect sustainability, we summarize our judgments on the degree to which each project was sustained and which aspects of projects were sustained. We also categorize projects according to the nature of their funding after U.S. assistance ended: (1) those that were terminated after U.S. and other external support ended, (2) those that continued with seriously insufficient national funding, (3) those whose continuous performance depended on other sources of donor financing, and (4) those that continued with national funding and could be sustained without donor support.

Different aspects of project outputs can be sustained. In most projects, outputs include both the human and material resources expected to deliver services and the institutions that are designed to continue to produce these human or material resources. For instance, outputs of A.I.D.'s Integrated Rural Health project (which provided support to Honduras's Rural Penetration Program) were both the auxiliary nurses who deliver services and the nursing school, which is designed to continue training nurses. Similarly, the water projects produced both the water systems and the institution that is responsible for constructing new water systems.

In only a few cases can we determine whether the project outputs produced the anticipated benefits (outcomes). In malaria programs, we can roughly associate the changes in incidence of disease and deaths with changes in malaria program activities. In immunization campaigns, we might associate changes in disease patterns with the campaign; however, except in Health Sector I (which is ongoing and so cannot yet be analyzed for sustainability) and in the SCISP period (about which we have no reliable data on disease patterns), A.I.D. has not funded immunization activities. For the rest of the health programs, the only potentially relevant indicator of health benefits is the infant mortality data. Since so many factors can influence infant mortality, these data are only suggestive of possible project impact.

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Table 3. Summary of Sustainability Factors by Case Study
Projects

To see Table 3, Please Order Document Number PN AAX211.

Of the six A.I.D. project cases we examined in detail, three projects had major outputs that were sustained in high degree: the auxiliary nurse training program of the Integrated Rural Health/Family Planning project (discussed in Appendix F on the Rural Penetration Program); the Rural Water Supplies project (Appendix C); and the hand pump and latrine component of the Nutrition Planning project (Appendixes E and F). Three other major project outputs were not well sustained after U.S. funding ceased: the malaria control activities that ended in 1969 (Appendix B); the family planning activities under the Maternal and Child Health/Family Planning project that ended in 1976 (Appendix D); and the multisectoral nutrition planning component of the Nutrition Planning project, which ended in 1981 (Appendix E).

All three of the sustained components of the projects were able to sustain immediate outputs (outputs that provide direct health benefits during the life of the projects -- e.g., auxiliary nurses, water systems, latrines) with national funds. In addition, one project (the auxiliary nurse training component of the Integrated Rural Health project) was able to sustain replicating outputs (outputs that continue to produce immediate outputs--e.g., nurse training school) with national funds. Honduras was also able to sustain replicating outputs for two other projects (Rural Water and the hand pumps and latrines component of the Nutrition Planning project) by obtaining alternate external funding from other donors.

4.1 National Commitment to Project Goals

National commitment to project goals is defined as a consensus among important decision-makers and interest groups in the Honduran health sector that the goals and objectives of a project were a national priority. Alternatively, major conflict among decision-makers or interest groups over the goals and objectives of the project is evidence of lack of national commitment. This issue is distinct from the question of whether or not the government applied national funds to support these objectives -- an issue treated in our analysis of the financing of projects.

It is clear that the lack of government commitment to the goals of a project almost assures that whatever is achieved through the life of the project is unlikely to be sustained (Heaver and Israel 1986). The cases of family planning and, to a lesser extent, nutrition planning, clearly demonstrate this conclusion. At best the Honduran Government was only mildly in favor of family planning and was unwilling to confront greater opposition in the political sphere. In the case of nutrition planning, no opposition appeared, but there was little active support for the program within any implementing ministry. In both these programs, project outputs and benefits during the life of the projects fell short of goals and objectives by significant margins. The Maternal and Child Health/Family Planning project, in part because of its verticality, was temporarily able to achieve urban-based contraceptive distribution and a growth in acceptor rates despite the lack of support by the Ministry. Nevertheless, the family planning program within the Ministry was dismantled, and for over 10 years no significant new Government

programs were initiated. The relatively successful private sector family planning agency (ASHONPLAFA) has been sustained only with almost total foreign support from the International Planned Parenthood Federation.

However, government commitment does not guarantee sustainability. Commitment to malaria projects has been quite high in Honduras, yet malaria eradication efforts could not be sustained at effective levels without continuing foreign funds. The malaria programs of the 1960s were not sustained in the 1970s after A.I.D. and UNICEF funds were withdrawn. The infrastructure of SNEM deteriorated and the incidence of malaria rose.

The Government's commitment to the Rural Penetration Program appears to have influenced its sustainability. Even after the enthusiasm of the program's initiation period waned and the program was relegated to a lower priority in the Ministry's activities, it still was maintained and continued with significant national funding. However, it was the program's externally funded subcomponents (training of nurse auxiliaries and the water and latrine program) that maintained, and in some cases increased, the level of program outputs. It should be noted also that the community health worker component of the Rural Penetration Program did not continue to receive priority after 1978, and this loss of commitment contributed to the decline in this aspect of the Rural Penetration Program.

The Health Sector I project has received significant commitment from two democratic governments in Honduras. There appears to be considerable consensus on the wide range of project goals and objectives. The Ministry of Health had given consistent priority to diarrhea control and immunization programs and appeared to be committed to managing and planning development even before Health Sector I was implemented. It is unclear, however, how all the project components would fare if A.I.D. funding were removed. There is some evidence that the second phase of the mass media and health practices program, as integrated with Health Sector I, is not achieving its goals and objectives as effectively as did the pilot project. In The Gambia, where a similar project was recently evaluated, the project was basically abandoned once A.I.D. funding ceased (Lieberson et al. 1986a). Nevertheless, the Honduran Government is likely to retain a high level of commitment to the goals of Health Sector I as a package, unless the demands of the expanding hospitals become overwhelming.

Commitment to the goals and objectives of a program has also come from populations and political actors outside the Government. For instance, beneficiaries of rural primary health care programs have petitioned the Government to provide rural water systems and medicines in the Rural Penetration Program. However, it is not clear that these demands (or their absence, as in the case of family planning) are significant for maintaining program activities.

Although popular demand for project services does not necessarily affect their sustainability, opposition from politically relevant groups may constrain program activities. University and church opposition to family planning appears to have played a role, albeit minor, in the decision to dismantle the 1965-1976 family planning project. But here, also, the power of nongovernmental actors has usually been quite limited.

Summary: National commitment to the goals and objectives of

a project was essential to the sustainability of its outputs and benefits; however, it was not sufficient to ensure sustainability.

4.2 Project Negotiation

The success of the relationship between A.I.D. and the Honduran Government is related to the commitment of both governments to mutually defined goals and objectives (A.I.D. 1982). In situations in which the U.S. Government appeared to be imposing its program on the Government of Honduras, the sustainability of project outputs was endangered. The clearest example of this situation is the Maternal and Child Health/Family Planning project (1965-1976). This project was viewed by Hondurans as a U.S. initiative, and its privileged, vertical organization further strengthened this perception. The project was dismantled when A.I.D. funding ended, and resistance to U.S. initiatives in the family planning area has remained high. Indeed, it is argued that the searing experience with the U.S.-imposed program has made opposition to family planning more enduring than it might have been.

Yet even when the Government and A.I.D. jointly determined goals and objectives, some project outputs were only sustainable with external financing. This was the case with the malaria and water programs that began during the SCISP period.

When U.S. project negotiation was supportive of national programs and plans, as in the Rural Penetration Program, the program was easily sustained. A.I.D.-funded auxiliary nurse training under its Integrated Rural Health/Family Planning project was one of the most successfully sustained project components: the curriculum and training facilities developed by A.I.D. still produce well-trained auxiliary nurses, and the nurses trained in the project continue to serve in their assigned post--all achieved with national funds.

The planning for Health Sector I was a long-term, carefully constructed process in which multiple goals, objectives, and activities were defined in a mutual and consensual manner. Nonetheless, this project is still not as clearly a national initiative as was the Rural Penetration Program. It also may suffer from the perception that A.I.D. is dominating the health sector because it is such a large, omnipresent project. Indeed, Health Sector I may be threatened by the success of its project negotiation: Ministry dependence on such a large project may make its sustainability impossible if U.S. funding were removed.

Summary: The most sustained A.I.D. projects or project components were either those in which U.S. influence at the initiation of the project was minimal or those in which the goals and activities were negotiated and mutually defined. Imposed projects were not only not sustained, they may have generated such enduring resentment as to inhibit future projects with similar activities.

4.3 Institutional Organization of the Project

The issue of the relationship of the institutional organization of a project to its effectiveness has often been posed in terms of the alternatives of categorical (vertical) and integrated (horizontal) organizational structures. A relatively recent alternative organizational design -- the matrix organization, which combines elements of vertical and integrated

organizations -- has been proposed as a more effective administrative design (Bossert 1984). Our cases include examples of all three types of organizational design. We examined how these types of organization were related to sustainability.

Categorical programs have relatively autonomous organizational structures that are outside the normal administrative structure of the Ministry of Health (often bypassing the Director General's office) and, in some cases, only nominally under the authority of the Minister. These vertical organizations are focused on a limited set of goals and objectives and often have their own separate budgetary authority.

Categorical programs generally have the advantage of a clearly established authority structure with well-defined objectives and limited priorities. They can more easily be held responsible for observable outputs, and technical assistance can be more precisely directed. In all our cases of categorical programs, the internal administrative structure generally functioned quite efficiently. However, it is clear that in order to be sustained, all the programs required continued A.I.D. funding or, in the case of SANAA, continued funding from other donors. Although national funding would probably have been sufficient to maintain A.I.D.-constructed SANAA water systems, new construction clearly required donor financing. SNEM, as an organization, did not survive the cutoff of donor funds and was eventually integrated into the Ministry of Health's Division of Vector Control. This division, structured as a moderately categorical program, has received A.I.D. funding under the Health Sector I project.

The classic example of the risks to which categorical programs are subject appears in the Maternal and Child Health/Family Planning project of 1965-1976. The family planning program became a target of strong opposition partly because this vertically organized program was perceived to be unfairly wealthy, privileged, and beyond national control. In this case, the vertical structure contributed to the resentment that became so intense that the project was aggressively dismantled even before foreign funding terminated.

Integrated programs work through the Ministry administration, using the established authority structure, including the Director General, the normative divisions, down through the regional, area, and local officials. (This was the case for much of the Rural Penetration Program.) Integrated projects often have the central objective of building general institutional capabilities, of upgrading several aspects of the administrative structure so that the institution is capable of achieving multiple goals, and of maintaining flexibility. Integration is often an effective means of achieving timely and widespread coordination of the multiple sets of activities that are often necessary for effective delivery of services. Integrated programs, however, run the risk of losing their effectiveness as bottlenecks arise and the interdependent parts fall apart. Integrated organizations have difficulty establishing priorities and directing resources toward crucial, bottleneck problems.

Of our project cases, portions of integrated programs of the Rural Penetration Program were the most sustainable, especially the training programs and the water projects. In the case of the water projects, the construction of new projects still depended on donor financing, but the maintenance of the systems created

during the project was supported by national funds. The auxiliary nurse training program has been continued without major donor support since A.I.D. funding ended. Training of community-level workers, however, was not effectively sustained, and these workers became decreasingly active as logistic, supply, and supervision systems deteriorated and as the political system turned against active community participation. Fully integrated projects, such as most of those under the Rural Penetration Program, however, ran the risk of declining efficiency over time. Projects were then less effective in sustaining the stream of benefits. The Rural Penetration Program, in effect, may have been too well integrated to be able to focus resources on the bottlenecks that developed in logistics, supply, and supervision.

The multisectoral Nutrition Planning project was an extreme form of an integrated project that attempted to integrate activities across several ministries. The project never overcame the difficulties inherent in trying to coordinate large institutions, with quite different agendas, none of which accorded nutrition a high priority. This design was not only not sustained, it was ineffective even during the life of the project.

The third form of organizational design represented in our cases is the matrix organization of Health Sector I. A matrix organization combines the potential to effectively address specific problem areas -- one of the advantages of vertical programs -- with the durability of institutionally integrated programs. In Health Sector I, this organizational structure has 18 subcomponents, and each is given the kind of priority that is often associated with vertical programs. Because many divisions within the Ministry receive some focused attention, there is less likelihood that any one program will be perceived as privileged -- as happened with the family planning program. In addition, the matrix is dominated by a large management and planning component that integrates the other components within the Ministry structure. Most of the projects (with the exception of the early phase of the Mass Media and Health Practice project and the Changing Maternal/Weaning Practices project, which were initiated as vertical programs separate from Health Sector I and outside the Ministry's normal structure) use the existing Ministry administration, including much of the enduring structure of the Rural Penetration Program. Although we cannot yet assess the sustainability of Health Sector I, we can conclude that it appears to avoid the risks of excessive verticality as well as the potential inefficiencies of fully integrated programs.

The Mass Media and Health Practices project and the Changing Maternal/Weaning Practices project, which were initiated as vertically organized child survival projects, have been integrated into the Ministry's general administrative structure. Both have experienced some difficulty in achieving this integration and in the process have lost some of their effectiveness. It remains to be seen whether programs that were initially vertically organized will be able to achieve greater sustainability as a result of their integration. The experience of the "integration" of the malaria eradication and family planning projects gives us pause.

Summary: The sustainability of vertical projects appears to have depended on the continuation of some kind of foreign support. Integrated projects were likely to be sustained, but their effectiveness in maintaining outputs and benefits (outcomes) declined because effectiveness depended on

successfully maintaining coordination of multiple activities. A matrix design, which combines elements of vertical program focus with an integrative management component, may provide a means of overcoming the risks of both extremes.

4.4 Financing

4.4.1 Project Financing Characteristics

This section examines the financing characteristics of each project that might have affected its sustainability (see Table 4). Section 4.4.2 then examines financing issues related to the Honduran health system and considers their relevance for sustainability.

Few of the expected relationships between the financing characteristics of projects and their subsequent sustainability were supported by our analysis. We had hypothesized, for example, that projects with a low A.I.D. share of funding and a high Honduran share would be more likely to be sustained. Such was not the case. Among the project components that were sustained, the auxiliary nurses program received less than half its funding from Honduran sources and the capital costs of the rural water systems were only 25-percent funded by Honduras. Among projects whose outputs were not sustained, the Honduran contribution varied widely. Similarly, there was no correlation between the extent of foreign assistance from donors other than A.I.D. and the continuation of project outputs and outcomes.

Table 4. Financing Characteristics of Selected A.I.D. Health Projects in Honduras

To see Table 4, please order Document Number PN-AAX-211

Although the willingness of the Ministry to absorb the salaries of project personnel might be important for sustainability, the projects examined in the present study do not suggest that this is a guarantee of sustainability. Malaria workers, for example, were paid by the Ministry long before A.I.D. funding ceased, but project outputs were cut sharply when the foreign support stopped; half of the family planning personnel were absorbed into the Ministry, but few of the staff were able to deliver family planning services.

Cost recovery did not appear to be a necessary factor for sustaining immediate outputs or replicating outputs. The degree of cost recovery varied among both the more sustained and the less sustained projects. The user fees paid for the SANAA water systems of the 1960s contributed to their administrative, operations, and maintenance costs and thus to their continued ability to provide water over the years; but these fees may not have contributed to the construction of new water systems.

One hypothesis that is supported, to some extent, is that projects that are more cost-effective tend to be sustained: successful projects are candidates for continued funding from both Honduran and international sources.

4.4.2 Contextual Aspects of Financing

Contrary to expectations, a general shortage of Ministry of Health funds did not explain why some A.I.D.-supported projects failed to be sustained. In the years after A.I.D. funding stopped, there were no general cutbacks in Ministry budgets that could be cited as a major cause of the failure to sustain project outputs. For example, U.S. assistance to malaria eradication ended in 1969, but these activities were not well sustained even though overall Ministry expenditures increased during the early 1970s. The same is true for the years following the end of the Maternal and Child Health/Family Planning project in 1976. Although the increases in Ministry budgets may not have been sufficient to fully replace the previously provided A.I.D. funding, budgets were nevertheless generally increasing; had the commitment been present, funds could have been found to sustain project outputs and benefits at levels closer to those that had prevailed during A.I.D. funding.

The health projects examined in this study involved primary health care activities, not hospital-based activities, so it could be hypothesized that some projects were not sustained because primary health care activities failed to compete successfully for Ministry funds. Such was not the case. Only in the 1968-1972 period did hospital operating expenses outstrip those for nonhospital-based programs. In the era of Health Minister Aguilar Paz (1972-1978) and the subsequent military (1978-1981) and elected (1982-1985) governments, primary health care operating expenditures grew faster than hospital operating costs (see Table H-10, Appendix H). Between 1968 and 1972, hospital operating costs as a percentage of total operating costs had risen from 53.8 percent to 61.5 percent. By 1978, at the end of the era of Minister Aguilar Paz, they had fallen to 56.5 percent. This decline continued, reaching 54.7 percent in 1981 and 51.1 percent in 1985.

Among projects that were not sustained, only in the malaria program does competition for funds appear to have affected sustainability. A.I.D.'s funding ceased in 1969. In 1970, nonhospital operating expenditures fell 12.7 percent; in 1971 they only partially rebounded by rising 7.0 percent. Not until 1972 and 1973 did primary health care costs grow faster than hospital costs. However, for the other projects whose outputs and benefits were not sustained, this explanation does not hold. A.I.D. funding ended in the 1970s and 1980s, when primary health care expenditures were growing faster than hospital expenditures.

In conclusion, the failure to sustain projects after A.I.D. funding ends is not attributable to unsuccessful competition against hospitals for funding. On the contrary, during years when most of the nonsustained projects failed to receive Honduran funding at the level of previous A.I.D. funding, primary health care operational funding was growing faster than that of hospitals. It should be noted, however, that much of the growth of primary care activities depended on a rapid increase in foreign funding for that sector. It is likely that the growth in external financing for primary care allowed the Honduran Government to allocate more of its internal funds to hospitals.

For the sustained projects, foreign financing played an important role in the replication of project outputs. The Cooperative for American Relief Everywhere, Inc. (CARE) and the IDB funded the construction of rural water systems in the 1970s

after the initial A.I.D. project ended. The large funding of Health Sector I helped the Ministry of Health continue the water and latrine components of its Rural Penetration Program. By contrast, when donor funding was unavailable, few projects could continue to sustain their replicating outputs. When A.I.D. assistance to the malaria program ended in 1969, replacement funds were unavailable from international sources; the malaria program was cut back severely in the early 1970s.

The Ministry of Health is very dependent on foreign funding, especially from A.I.D. A.I.D. is currently providing funding at a very high level, reflecting the current political priority of Honduras. Of particular concern is the use of Economic Support Funds to fund the counterpart responsibilities of the Honduran Government. Should U.S. priorities change and funding be reduced, it is doubtful that Honduras would be able to maintain its current level of public health expenditures.

Summary: No clear relationship was found between sustainability and the size of A.I.D. funding, national assumption of recurrent salary costs, cost recovery, or the proportion of the national health budget devoted to hospitals versus primary health care. However, high and growing levels of external donor financing in recent years make the sustainability of current projects with national funds extremely unlikely.

4.5 Technical Assistance

Technical assistance has been a component of all the A.I.D.-funded projects. It has also constituted a large part of PAHO assistance. Three major characteristics of technical assistance appear to influence the sustainability of projects: (1) duration of the technical assistance provided for a specific project activity, (2) size and coherence of the technical assistance team, and (3) degree to which technical assistance is phased out and Honduran counterparts take over. The malaria and sanitation programs during the SCISP period were implemented by a unified team of technical advisers who stayed in the country for an extremely long period (20 years). SCISP quite successfully trained competent counterparts who were able to administer SANAA and SNEM effectively after SCISP was terminated. During the final years of the SCISP period, as the Government of Honduras assumed a greater share of the expenses, resentment arose over the salaries of the U.S. administrators, even though these officials were paid directly through the U.S. Public Health Service.

The Maternal and Child Health/Family Planning project also involved significant technical assistance, which may have contributed to the perception that it was an imposed program. The program, however, also involved considerable training of counterparts, who might have been effective in administering the project had it continued.

A.I.D. support, through its Integrated Rural Health project, for the training of nurse auxiliaries and community-level personnel in the Rural Penetration Program included technical assistance in the development of curriculum and the provision of several teachers in the initial program. This assistance was short term and was easily phased out, and Honduran counterparts effectively took over the training programs.

Because short-term consultancies occur in all projects, it

is difficult to attribute success or failure to this form of technical assistance; however, there are examples of particularly important contributions to the Rural Penetration Program. Short-term technical assistance from the planning office in PAHO/Washington played an important role in designing the program. It was, however, a particularly innovative type of cooperation in which the advisers claimed to be learning as much from the development of the program as were the Hondurans.

Health Sector I has a massive technical assistance presence. The A.I.D.-contracted Management Sciences for Health team is a tight-knit and well-managed group. It has maintained good relations with counterparts, some of whom joined the team after their Ministry service and are now working as technical advisers to their former Ministry colleagues. Although there are reports of some resentment in the Ministry over such a large presence of foreign advisers, relations between Management Sciences for Health and the Ministry are apparently even better than before.

With the anticipation of a second, similar large-scale project, Health Sector II, there seems to be little likelihood that the technical assistance will be significantly reduced in the near future. However, the planning for Health Sector II does anticipate a phased reduction in technical assistance.

Summary: Very long-term technical assistance that involved significant training of counterparts and allowed counterparts gradually to assume greater responsibility has been effective in sustaining project outputs. Large-scale assistance, however, has also generated resentment against the foreign presence. Short-term technical assistance has also made significant contributions to the sustainability of project outputs.

4.6 Donor Coordination

The programs of various donors in Honduras are seldom coordinated by any explicit, rational plan designed by the Government of Honduras or through collaboration among the donors themselves. Lack of coordination has led to duplication of effort among donors, conflicting purposes, and competition for scarce Ministry counterpart funding and personnel. Despite the lack of formal mechanisms for coordination, however, there appear to have been some periods of implicit coordination, sometimes managed on an ad hoc basis by the Ministry. Sometimes this implicit coordination occurred as a division of labor among donors -- for instance, in the Rural Penetration Program, A.I.D. provided training, PAHO emphasized planning, and UNICEF provided equipment for the health posts and health centers that were built with IDB funding. Other cases show an implicit coordination through a sequencing of donor support, as one donor took over the activities of the other -- as in the SANAA water projects that were funded by IDB as A.I.D. phased out its support.

There have been several problems related to donor coordination, however. A.I.D. and IDB, despite attempts at communication and agreement, have sometimes worked at cross-purposes, A.I.D. emphasizing rural primary care and IDB urban-based hospital care. The recurrent cost burden of several major new IDB-financed hospitals may eventually make fewer resources available for basic health care in rural areas. Also,

several case studies show the sometimes ill effects of several donors working concurrently to bring a new priority and program organization to Honduras. When several donors focus on the same types of activities, the duplication of support can lead to competition for scarce resources, as it does now in Health Sector I, where A.I.D. assistance competes with that of PAHO on the management and planning programs and with that of UNICEF on child survival activities.

The risks inherent in this overlapping of donor activities were most apparent in the malaria programs. Both A.I.D. and UNICEF provided major funding over a long period, but when they both withdrew, there was no other donor to provide continuing funding or to give support to a program that had become accustomed to receiving large amounts of outside support.

Summary: Donor coordination that resulted in a division of labor among donors and a sequencing of support in which donors alternated funding of the same activities appeared to have contributed to the sustainability of A.I.D. project outputs and benefits.

4.7 Training

Because the project component (training of nurse auxiliaries) that maintained both immediate and replicating outputs with only national funding was part of a training project, we might be tempted to conclude that training is the most sustainable type of project. However, it is clear that training alone is not sufficient; also required are the resources to employ the trained personnel and support the activities for which people are trained. The nurses trained during the life of the project continue to provide health benefits, albeit at a lower level of effectiveness, to the Honduran population. The three nursing schools constructed by A.I.D. continue to train more nurse auxiliaries and to use much of the curriculum developed by A.I.D. technical assistance.

This project also trained community health worker volunteers -- guardianas, representantes, and midwives -- but this component was not as well sustained. Some sources estimate that fewer than half of these health workers continue to function and that the programs to train new volunteers have also been less effective. It is likely that the lack of a continuous supply of materials and adequate supervision has resulted in the loss of effectiveness of these trained individuals. Other volunteer workers in A.I.D.-supported projects, such as the malaria volunteers, were also effective only as long as such support was forthcoming.

The Maternal and Child Health/Family Planning project also involved training auxiliaries and other health workers. Although many of the workers continued to be employed by the Ministry after the project was terminated, they received no support to continue using their training.

Summary: Although a training project was one of the sustained projects, other projects with large training components have not been sustained. Training projects without continued support for the activities for which health workers have been trained are unlikely to be sustained.

Many projects included continuing education or specialized training for health officials already employed by the Ministry. Such programs were a large part of the SCISP period, during which fellowships were available for public health education (often for long periods) in U.S. schools. Many of the individuals who received this training assumed important positions in the institutions that followed SCISP, such as SANAA and SNEM. Unfortunately, no systematic study was done to evaluate the retention rate of those trained, so it is unclear how sustainable these continuing education components were.

Continuing education has been a large part of the Health Sector I project. Many short courses, held both in Honduras and in the United States, have addressed specialized health topics as well as basic administrative issues. Some specialists in maintenance and other technical areas have attended long courses overseas. It is unclear whether this approach to training will contribute to more sustainable projects.

Summary: There is insufficient evidence to ascertain the impact of continuing education on project sustainability.

4.8 Community Participation

Communities may participate in health programs in a variety of ways, from independently deciding on and planning project activities to simply using project services. The Honduran Government has generally defined community participation as community collaboration with Ministry projects in order to make them more effective, which has most commonly been manifested through community selection of volunteers.

Community volunteers had significant roles assisting SNEM's malaria eradication efforts and maintaining the SANAA water systems. Beginning with the Rural Penetration Program in the 1970s, health promoters were trained to organize and motivate health committees, whose function was to help set community priorities, select individuals to be trained as community health volunteers, and provide labor and some materials for local health activities. The guardianas are village volunteers trained in 1-week courses and supervised by auxiliary nurses. They provide basic primary care with simple medicines and assist in immunization campaigns and health education campaigns. Representantes are leaders in the community who help maintain the health committee, organize local work forces and materials, and work closely with the promoters in water and sanitation projects.

Collaboration has also occurred through the provision of volunteer and semivolunteer labor (some labor being compensated through food-for-work projects). Communities have helped construct thousands of health posts, health centers, wells and small water systems, and latrines, and have participated in many income-generation projects.

Although the Honduran Government considers its role to be that of providing services through a top-down structure, during the Rural Penetration Program period of 1972-1978 and to a limited degree during current local programming exercises, there has been some genuine community decision-making. However, active community decision-making has not been the predominant form of community participation in Honduran health programs.

Beyond great variation in the nature of community participation, community participation has also varied greatly over time and by region and even community. Community participation from 1942 to 1970 was minimal, with the exception of the active network of malaria-campaign volunteers that was built up in the late 1950s and 1960s. In most of the health programs, community participation reached its zenith during the Rural Penetration Program, when a commitment and enthusiasm to expand health services to rural areas swept the nation. The major exception during this period was the malaria program, whose cadre of community volunteers declined substantially during the 1970s, only to be reestablished in the 1980s. From around 1979 to 1982, there was a lessening of national enthusiasm for rural health care and a drop-off in the activities of community volunteers (particularly the representantes) and community health committees. Since 1982, participation has again risen slowly, but it has not regained its previous levels.

The effectiveness and stability of community volunteers appear to depend largely on general program effectiveness. When community volunteers are well trained, well supervised, and perhaps most important, well supplied, and when referral systems work, community volunteers have tended to stay motivated and active. The effectiveness and stability of community committees likewise depend on the program's ability to support them with material assistance and supervision.

There is little doubt that community participation has been a positive factor in the achievement of health program goals. Community health volunteers, other community members, and community groups have helped build and maintain water systems, health facilities, and latrines; have filled in mosquito-breeding sites and cleared trash and brush away from houses; have assisted in thousands of births; have treated thousands of illnesses; and have supported health workers and facilities in numerous ways. Indirectly, then, by extending program benefits, community collaboration has contributed to the sustainability of many health programs.

The other argument concerning the contribution of community participation to sustainability is that greater participation may contribute to greater community demand for the continuation of the program. Community demand has been important in stimulating rural water projects; many communities have sent citizen delegations to SANAA or to Ministry of Health officials to request water systems for their communities. Community members not only have provided labor but also have been willing to pay monthly user fees for their water systems.

In other health-related program areas in Honduras, however, community demand is probably not a major factor in ensuring program sustainability. Although the Honduran political leadership tries to respond to community demand for support and services, this demand is usually weak and may even be ignored as long as Honduran politics continues to work essentially through patronage and personalist channels. Widespread community decision-making and establishment of priorities might well be politically dangerous in Honduras and might not be tolerated by the military and political leadership.

Summary: Community collaboration has strengthened programs and made them more effective, but its generation and maintenance have also required program efforts and resources. Community demand for programs

to be established and maintained does not appear to be a major factor for health program sustainability in Honduras.

4.9 Effectiveness

As noted above, it is often difficult to demonstrate that a given project has had the impact on health that was anticipated in project documents. Only recently have efforts been made to estimate "lives saved" and "illnesses averted" by specific project interventions. Nevertheless, it is often possible to assume that if measurable outputs are achieved and continue to function in expected ways, then they do contribute to the achievement of anticipated health benefits. For example, if communities are supplied with relatively clean water and if auxiliary nurses continue to provide primary care activities, we can generally assume that health benefits are reaching the Honduran population. In our cases, we usually had to rely on the perceptions of evaluators and Honduran health officials in determining the general effectiveness of projects. Sometimes this perception was backed by relatively hard evidence; in most cases, a clear consensus was easily established.

In general, projects that were perceived as effective during their implementation were more likely to be sustained than were projects that were not perceived as providing anticipated outputs and benefits. The least effective projects were the Nutrition Planning project and the Maternal and Child Health/Family Planning project. These projects were also the least sustainable. The most sustainable projects were the auxiliary nurse training component of the Integrated Rural Health/Family Planning project and the Rural Water and Sanitation (water pump and latrine) project, both under Honduras's Rural Penetration Program, and the SANAA rural water projects, projects that were perceived as effective during the life of the projects. The only project that was perceived as effective during the period of A.I.D. funding but was not sustained after foreign funding stopped was the malaria program.

There may, however, be some negative consequences of effectiveness. The malaria eradication project was deemed to have been sufficiently effective during certain periods that foreign funds were reduced, only to result in a decline in malaria control activities and a resurgence in the incidence of malaria. Also, the Rural Penetration Program was so successful during its first phase that it was expanded beyond the administrative capacity to continue providing the supplies and supervision necessary for continued high levels of effectiveness. In addition, it appears that the child survival projects (Mass Media and Health Practices and Changing Maternal/Weaning Practices) that were very effective initially as vertical programs experienced a decline in effectiveness when they were integrated into the Ministry. It is unlikely that these projects could have been sustained had they retained their vertical organization.

Summary: Projects that were perceived to be effective during the life of the project appear to have been more likely to be sustained than projects that were perceived not to have achieved anticipated outputs and benefits. Effectiveness during the life of the project, however, has also led to later choices

that undermined sustainability (as in the malaria eradication projects) or weakened the future effectiveness of project activities (as in the Rural Penetration Program and Health Sector I child survival projects).

5. CONCLUSION: LESSONS LEARNED AND POLICY IMPLICATIONS

5.1 The Need for Comparative Studies

The implications of this study for the design and implementation of other health projects must be tentative. We hesitate to make recommendations based on the experience of one country. It is clear that the Honduran context of these projects is likely to have shaped the conclusions we have reached and that without comparative analysis with projects in other countries we cannot easily determine the importance of the Honduran context to our findings. Factors about the Honduran context that may have relevance are country size, per capita income, economic structure, geopolitical salience, political system, sociocultural characteristics, and particular disease patterns. Some of these factors -- probably country size, income level, and geopolitical salience -- may have a significant effect on constraints that affect sustainability. If we were to compare the history of health project sustainability in a large country with higher per capita income level and lower geopolitical salience, we might be able to determine the importance of these contextual factors.

We need also to develop a larger sample of cases. Perhaps there are more similarities among water and sanitation projects, regardless of time period or country, than there are similarities among other types of health projects. Only with more historical studies of the full range of health projects can we develop the basis for making these judgments.

We believe that our methodology provides a sound basis for future studies of sustainability. The use of the case study method with a systematic systems analysis over a long historical period provides an excellent means of understanding what has worked in one country's context. The conclusions we have reached for each of the nine sustainability factors are hypotheses that can be examined in future comparative studies of projects in other countries.

The historical approach has allowed us to examine a full series of many different types of health projects within a relatively stable social, economic, and political context. We were able to identify sequences of projects -- such as malaria eradication, rural water supply, and family planning -- in which changes in project design and implementation processes allowed us to determine more clearly the contribution of crucial factors to sustainability. Working in one country also allowed the research team to benefit from cumulative experience and interviews with key informants who could put their observations in historical perspective. This long-term, in-depth analysis will provide a much more accurate, detailed, and complex basis for comparison with other country cases than would comparison of one type of project during one period in several countries.

5.2 Factors Related to Health Project Sustainability in Honduras

We found five factors that were significantly related to the sustainability of U.S.-supported health projects in Honduras: national commitment to project goals, project negotiation, institutional organization, donor coordination, and project effectiveness. Project sustainability was less clearly related to five other factors we examined: project financing characteristics, technical assistance, training components, and community participation.

In the following subsections we review our conclusions about each factor and suggest some policy implications of our findings. We should reiterate a caution: These conclusions are based only on our review of the Honduran cases and therefore should be considered only as hypotheses to be examined in other country contexts. Therefore, the policy implications we draw are extremely tentative.

1. National Commitment to Project Goals. Most of the U.S.-funded projects in Honduras were designed to achieve goals and objectives that were high priorities for the Ministry of Health at the time of the project and subsequently. Two of the three cases of low sustainability (Maternal and Child Health/Family Planning and Nutrition Planning) were projects that Honduras considered of low priority or openly rejected. However, one case, the malaria eradication projects, suggests that sustained government commitment does not guarantee project sustainability. National commitment, therefore, is a necessary but not sufficient condition for sustainability.

Policy Recommendation: No project should be supported unless it has national commitment that is likely to be maintained through subsequent governments.

2. Project Negotiation. Projects that were designed through negotiations based on mutual respect between the Honduran and U.S. governments were more likely to be sustained. The two cases that were viewed as imposed on Honduras by A.I.D. -- Maternal and Child Health/Family Planning and, to a lesser extent, Nutrition Planning -- were the least sustained projects. The project component that was sustained by national funding -- auxiliary nurse training -- was one designed in the context of the Honduran Rural Penetration Program and developed with Honduran support to fit within the nationally defined program.

Policy Recommendation: Projects should be developed in a negotiating process based on mutual respect so that objectives and activities are arrived at by consensus and not perceived as imposed by A.I.D.

3. Institutional Organization. Vertically organized projects run the risk of generating resentment among those who work within the regular Ministry programs. The resentment became so intense in one case -- Maternal and Child Health/Family Planning -- that the project was deliberately dismantled at the end of A.I.D. funding. Malaria projects also were vertically organized and were unable to sustain effective levels of outputs once foreign funding ceased. Of the vertically organized projects, only the SANAA rural water projects were able to sustain immediate outputs with national funds and to gain continued foreign support for the construction of new water and sanitation systems after A.I.D. assistance stopped.

Integrated projects -- the auxiliary nurse training and the hand pump and latrine project components that were integrated

with the Rural Penetration Program -- were more successfully sustained. However, their effectiveness appeared to decline when foreign funding ceased.

The matrix organization of Health Sector I, which targets specific activities but integrates them within the Ministry and also provides an integrating management and planning component, appears to avoid the risks inherent in the extremes of vertical and horizontal projects and allows flexible response to bottlenecks.

Policy Recommendation: Privileged vertical projects should be avoided. The effectiveness of integrated projects can be enhanced by use of a matrix organization that allows a flexible response to bottlenecks.

4. Donor Coordination. Few U.S. projects involved explicit coordination of activities with the other major donor agencies -- PAHO, IDB, UNICEF. However, an implicit division of labor or the sequencing of follow-on funding has played a role in the sustainability of U.S.-funded projects.

When donors focus their projects on separate but compatible aspects of a national program -- as they did in their projects under the Rural Penetration Program -- the projects appear to be more sustainable than when donors all focus on one activity and then terminate their support simultaneously -- as they did in the malaria programs.

A sequencing of donor funding, in which one agency begins funding the activities initiated by another when that agency ceases its funding -- as occurred with the SANAA rural water projects -- appears to contribute to the sustainability of both immediate and replicating outputs.

Policy Recommendations: Projects that duplicate other donor activities should be avoided, and a division of labor among donors should be established.

Coordination with other donors should be encouraged in planning a sequence of support in which donors alternate their support for the replicating outputs of each other's projects.

5. Effectiveness. Projects that were perceived to be effective during their implementation were more likely to be sustained than were projects that were perceived not to be providing anticipated outputs and benefits. The least effective projects were the least sustained -- the Maternal and Child Health/Family Planning project and the Nutrition Planning project. The most effective projects or project components -- auxiliary nurse training, water supply and latrines, and SANAA rural water projects -- were the most sustained.

Malaria projects were the exception that suggests caution concerning the role of effectiveness in project sustainability. Malaria projects were effective at high levels of foreign funding, but they collapsed once the funding ceased. Similar concern is being raised about some of the child survival projects that are currently quite effective with their high levels of foreign support.

Policy Implication: Projects should be designed so that they are likely to achieve important objectives

and to be perceived as effective. However, effectiveness should not be pursued at the expense of the other factors that appear to affect sustainability.

5.3 Other Factors

1. Financing. We found that there was no clear pattern of project financing that contributed to project sustainability. We were unable to establish a relationship between sustainability and size of funding, national assumption of project costs, or cost recovery. We did find an alarming growth in dependence on foreign funding in recent years that would leave the primary care sector particularly vulnerable were foreign support to be reduced. Because this growth has occurred mainly during the current Health Sector I project, we were unable to assess its effect on postproject sustainability.

2. Technical Assistance. Neither duration of the technical assistance, the size and coherence of the technical assistance team, nor the way in which technical assistance was phased out and Honduran counterparts assumed responsibility appeared to be clearly related to project sustainability.

3. Training. There was no clear relationship between types and extent of training components and the sustainability of projects.

4. Community Participation. Although community participation may have contributed to the effectiveness of projects, it is not clear that community participation contributed to sustainability. Indeed, it appears that participation itself may be more difficult to sustain than other project outputs.

APPENDIX A

METHODOLOGY

1. INTRODUCTION

This appendix discusses the methodology applied in the study of the sustainability of U.S. Government-supported health programs in Honduras. Essentially, the study team field-tested the methodology, adapting it in the process to the circumstances encountered in Honduras. Sections 3 and 4 below discuss how the methodology was field-tested and offer observations concerning the methodology.

The methodology that was to be employed in the study is described in "Honduras Health Assistance: Evaluation Design" (1986), by Thomas Bossert, study team leader, of University Research Corporation. This original methodology had benefited from the contributions of many individuals and from previous reports. The following reports are among those that were particularly useful: "Evaluation of A.I.D. Health Programs in the Context of Sustainability" (Blumenfeld 1986); "Issues in Health Sector Evaluation" (Blumenfeld and Pipp 1985); "Issues in Health Impact Sustainability" (Buzzard 1987); and "Framework for National Health Sector Impact Evaluations and Generic Scope of Work" (Godiksen 1986).

The study team, contracted by University Research Corporation, included the team leader, a policy analyst with a Ph.D. in political science and 8 years of experience in public health policy analysis in Central America; a public health specialist, with a Master's degree in Public Health and extensive experience in evaluation of primary health projects; and a development economist, with field experience in financial and economic analysis of rural credit and water projects. All team members have had experience in Latin America and speak Spanish. The team was in Honduras for 3 1/2 weeks in November 1986.

Honduran counterparts involved in the study included three physicians who had been prominent in Honduran public health. Two had been Vice-Ministers of Health and one had been the Director General of Public Health. In addition to sharing their detailed knowledge and historical perspective, they wrote several preliminary reports and facilitated the team's access to important Honduran informants.

The A.I.D. project manager, from A.I.D.'s Center for Development Information and Evaluation, participated in all aspects of the study, both in Washington and in the field. In addition, a population officer from the Office of Health of the Bureau for Science and Technology joined the team for 1 week to research and write one of the case studies. A former USAID/Honduras health officer helped design the study, facilitated access to officials, prepared the final workshop, and reviewed the report and cases.

USAID/Honduras continued to express interest and provide support. The health and population officers reviewed design papers, initial drafts, and final drafts; facilitated access to Honduran officials; and made themselves available for interviews by the team. They contributed conceptually, factually, and administratively to the study. Nevertheless, the team was careful to avoid burdening the Mission unnecessarily. The study team established its own office with an excellent secretarial service, word processing support, and a vehicle.

2. DESCRIPTION

2.1 Systems Approach to the Case Studies

The purpose of the study was to investigate why, for some U.S. Government-supported public health projects, the activities and benefits of the projects continued after the end of U.S. assistance, whereas for other projects they did not. What factors favor or inhibit sustainability? In particular, how can the design and implementation of future projects be modified to increase the likelihood of postproject continuation of activities and benefits?

The obvious way to look for answers to these questions was to examine the experience of U.S.-supported health projects in Honduras. These projects became the cases to be examined. We focused on projects that were completed some time ago and for which, as a consequence, we could determine whether their activities and benefits were continued after U.S. assistance ceased.

The methodology, as described in the following paragraphs,

is a basic systems approach, which studies a multiplicity of influences on the sustainability of projects. The projects were examined in the context of an overall system with interacting subsystems (or elements), such as the government, economy, communities, and international donors and lenders.

2.2 Project Matrix and Time Periods

The projects were described using a matrix with six levels, from inputs to goals. An example of this matrix is given in Table A-1. Like the A.I.D. logical framework, the matrix is a hierarchy with one element leading to the next; for example, inputs, through a process, achieve outputs. The use of the matrix provides rigor and consistency in the description of the project. Comparisons of project outcomes (benefits) to the inputs permit observations to be made about the overall effectiveness of the project.

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Table A-1. Sample Project Design Matrix

Matrix Element	Rural Water Supplies Project Design
Goals	Improved health of villagers Improved economic condition of villagers
Objectives	Reduction in time and effort expended in obtaining water Reduction in water-borne diseases
Outcomes (benefits)	Increase in quantity of water supplied to homes Increase in quality of water supplied to homes
Outputs	24 water systems constructed according to specifications 24 water systems operated and maintained
Process	SANAA works with community A.I.D. provides technical assistance to SANAA SANAA builds system SANAA hires villagers to administer and operate system

Inputs A.I.D. loan of \$1,050,000
 A.I.D. technical assistance
 SANAA budgetary support
 Community participation

=====
The projects are also defined in terms of three time periods: preproject, project, and postproject. Comparisons of the preproject period to the project period enable judgments to be made concerning whether the project increased committed resources (inputs), provided net benefits, or increased the achievement of objectives.

The use of the matrix and the clear demarcation of time periods facilitate answering these questions:

- What is being (or should be) sustained?
- When should sustainability be measured?

After considerable discussion, especially during the first week in Honduras, the team decided to focus on the sustainability of project outputs and outcomes (benefits). Achievement of goals and objectives is important, but direct data on the impact of project outputs on health indicators are often lacking. Although practical measurement problems exist at each level of the matrix, there were only a few cases in which data on outcomes -- such as increases in the water supplied to homes or reductions in the incidence of certain diseases -- were available.

Because we had such limited data on project outcomes, most of our analysis focused on the outputs, the immediate result of the project's use of inputs. Number of trained nurses and number of water systems constructed are examples of outputs. We had to assume, then, that these outputs continued to produce their expected outcomes: for example, that trained nurses continued to utilize their training and continued to provide services that were expected to improve the health of the population.

Thus, we decided that project outputs and, when information was available, outcomes would be the units of measurement for sustainability. Information on the other elements of the matrix, however, would still be of interest to our analysis. In particular, for the financing aspects, the input level of the matrix is pertinent, and so we sought data concerning the resources provided in the preproject, project, and postproject periods.

The "when" question was answered by the decision to focus on two time periods: 3-to-5 years after the project and up to 20 years after the project. The 3- to 5-year period provides enough time after the end of U.S. assistance for the host country to find other ways of providing the same outputs and outcomes, if indeed it is going to do so. The 20-year period provides a long-term perspective.

A project would be judged to have been sustained if the project's level of outputs and outcomes continued in the 3- to 5-year postproject period.

2.3 Sustainability Factors

Nine factors related to the design and implementation of USAID/Honduras projects were identified as potential influences on the sustainability of A.I.D. projects. They reflect the systems approach, in that there is a broad range of factors that are interrelated and that may contribute to sustainability. The factors are as follows:

- National commitment to project goals
- Policy dialogue between A.I.D. and Honduran authorities
- Institutional organization of the project
- Financing
- Technical assistance
- Donor coordination
- Training
- Community participation
- Project effectiveness

During the study, two factors (the first and last) were added to the initial seven that had been included in the evaluation design.

2.4 Development and Testing of Working Hypotheses

For these sustainability factors, working hypotheses were developed that related characteristics of the project to its likelihood of being sustained. That is, it was hypothesized that certain characteristics of the project during its implementation may favor sustainability. This approach tries to determine which factors may be consistent with, or "predict" in some fashion, the subsequent continuation of outputs and outcomes. The identification of such predictive factors would be useful for the design and implementation of future projects.

Examples of working hypotheses are as follows:

The outputs and outcomes of A.I.D.-supported primary health care projects are MORE likely to be continued after the project, given

- GREATER commitment during implementation to the project's goal by the central government, the implementing agency, and beneficiaries
- MORE central positioning of the organization of the project on the vertical-to-integrated spectrum
- A LOWER share of A.I.D. financing throughout the project

-- MORE host country involvement in setting the objectives of and directing the technical assistance

All these hypotheses relate project characteristics (or conditions) of the project period to the likelihood of postproject continuation of benefits.

It was recognized from the outset that it would not be possible to test these hypotheses in a statistically significant fashion in the Honduras sustainability study. Such rigorous tests would have used the extent to which projects were sustained as the dependent variable: projects would be classed as "sustained" or "not sustained" or, more ambitiously, according to values on a scale ranging from fully sustained to not sustained. The independent variables would be the large number of project characteristics arising from the nine sustainability factors and multiple elements within factors. Statistical techniques, such as multiple regression analysis, would then be used to test for relationships between the independent and dependent variables. Care would have to be taken to allow for interdependence among the independent variables and for the influence of the external issues discussed in Section 2.5.

However, such statistical testing was not possible for a number of reasons. First, there are a host of definitional and measurement problems concerning several of the variables. How does one quantify national commitment, for example? How can national commitment be distinguished from central government funding? Commitment by whom?

Second, even for quantifiable variables there are severe problems in obtaining data. For projects that go back to the early 1940s, good data are unavailable. Care must be taken to ensure that the data that are available consistently describe the same phenomenon over time. One problem encountered, for example, was the changes in the budget categories used through the years by the Ministry of Health.

Third, the number of case studies was small relative to the number of independent variables.

Because of these major problems, the testing of hypotheses was approached in a much more qualitative manner. The analysis of factors related to sustainability was carried out with flexibility and with openness to new ideas. For example, both the sustainability factors and hypotheses for these factors remained fluid throughout the study, subject to additions, deletions, or other modifications.

2.5 External Issues

The methodology of the study also recognized that continuation of project outputs and outcomes is affected by events and conditions between the time the project ended and the time the continuation of benefits is measured. These issues are external to the project, but they directly reflect the fact that the projects operate within the context of larger systems. For example, Ministry of Health budgets could be reduced as a result of a recession and cutbacks in the entire central government budget, which in turn could explain why certain projects were not continued after U.S. assistance ended.

The consideration of external issues focuses on national and Ministry-level events and conditions that formed the context in which the projects operated and in which they subsequently were or were not sustained. Unlike the methodology used for analyzing the project characteristics, which requires looking at two time periods, the same time period is used for examining both the factors and the impact of external issues. For example, a change in government in the postproject period could explain the failure to continue to produce outputs and outcomes.

An understanding of the role of external issues can also provide useful information for the design and implementation of projects, albeit in a different fashion. Because these factors are largely exogenous to the projects, designers may direct their efforts at insulating their projects from possible adverse external events.

3. FIELD TESTING

In addition to its directly substantive aspects, the present study also included field testing of the methodology. Shortly before leaving for Honduras and especially during the first week in Honduras, the team discussed how the methodology was to be applied. These discussions also led to the addition of the sustainability factor, "national commitment to project goals."

The methodology imposed great demands for data and information. Comparable data were needed for outputs and outcomes for different time periods, for example.

The hypotheses also required considerable qualitative information, much of which could only be obtained through interviews. A set of standard questions was developed, phrased in such a way as to give the interviewees an opportunity to express their own views. There were many open-ended questions. The purpose of the study was explained and interviewees were invited to present their own ideas on sustainability.

Once the case studies were prepared, they were presented at a 1-day workshop of Honduran health officials (past and present) and A.I.D. staff. At the workshop, separate working groups reviewed each case and presented their evaluations of the factual and interpretive materials of each case. These evaluations were quite positive, and some factual errors were changed as a result of the workshop.

During the 3 1/2 weeks in Honduras and the days in Washington, D.C. in early December 1986, the team met often to discuss the implications of the data and information collected with respect to the sustainability factors, hypotheses, and the external issues. These discussions, as well as those at the concluding workshop in Honduras and the debriefing meeting in Washington, also contributed to the qualitative testing of hypotheses. During these discussions, the team decided to add "project effectiveness" as an explicit sustainability factor for which sufficient information had already been collected. Consideration was also given to adding another new factor, "mix of human resources and material support from A.I.D.," but it was decided to treat that as an item within the financing factor.

4. OBSERVATIONS

The following observations may be useful both for understanding the development and use of the methodology in the present study and for planning similar studies concerning sustainability.

- Sustainability is a complex issue to address. The time spent by the team developing and adapting the methodology was time well spent.
- The methodology described above was a useful way of approaching the subject of sustainability. It makes full use of the advantage of already knowing whether a past project has been sustained. The systems approach allows many variables to be considered for their possible impacts on the sustainability of specific projects.
- Such studies must be (1) analytically rigorous in examining sustainability (e.g., in identifying sustainability factors, developing hypotheses, and assessing the impact of external issues) and (2) open to new ideas and flexible in adapting the methodology to available information and local circumstances.
- Quantitative data and hard information are often difficult to obtain, so qualitative and qualified statements are accordingly necessary.
- The methodology involves the use of A.I.D.-supported projects as the cases to be examined. In the present study, it was considered important to examine the Ministry of Health's Rural Penetration Program (see Appendix F), which began in the 1970s. This Honduran program received assistance from several A.I.D. projects. Thus, it was necessary to look at components of this program to determine whether the A.I.D.-funded activities continued after A.I.D. assistance ended. This is an example of how flexibility was needed in applying the methodology.
- The present team had a number of advantages going into the study, including the following:
 - The team had made two earlier design trips, which facilitated project logistics and access to current and former officials.
 - Prior preparation of papers on methodology had helped define conceptual issues.
 - Pertinent documents had already been collected in Washington, D.C. and Honduras, and the team was assisted by an excellent counterpart group of Honduran public health officials (who had held high posts in the Ministry of Health).
 - The team leader was very familiar with public health policy in Honduras.

Each of these advantages was important to the success of the

present project. A future study should consider ways of ensuring that study teams enjoy similar advantages.

- The 3 1/2 weeks in the field and the few additional days in Washington, D.C. to polish the draft report were inadequate. More time could have been spent obtaining information, discussing issues, and preparing and revising the report. When the time allotted for the study was up, the team was still assessing and interpreting the information obtained.

Although appropriate to the difficulty of sustainability as a subject of study, the methodology is demanding in terms of the quantitative and qualitative information required. Time is also needed at the end of the study to assimilate the information and draw conclusions.

It would have been desirable to have had 2 months in Honduras instead of one. The additional month could have been added to the study month in Honduras, or it could have been split between the design trip and the time of the study itself.

- The detailed investigation of the case studies was an excellent investment of time. Sustainability can become an abstract, ephemeral topic; immersion in the case studies provided an important anchor in reality.
- One of the features of the methodology is that it treats different kinds of public health projects the same way, in the sense that all are treated as cases. It should be recognized, however, that some aspects of a case may be specific to a particular kind of public health project.

In the present study, the evolution of the malaria eradication program was heavily influenced by the earlier belief of international donors and Honduran officials that malaria could be eradicated in Honduras.

The rural water systems of the National Water and Sanitation Service (SANAA) are included in the present study as one of the projects. People know they need water, which is frequently not true of many health care goods and services. Yet, although they want the convenience and aesthetics of clear water piped to their homes, they may not appreciate the health benefits of potable water. Because water is a commodity in demand, as well as a way of conveying health benefits, this could explain the continuation of water supply projects.

The effect of this special relationship between demand for water and the continuation of water supply projects can be partially overcome by being aware of it and allowing for it in the interpretation of results. A series of comparative studies of the sustainability of the same kind of project in different countries may provide an opportunity to overcome this limitation.

- In measuring which project outputs and benefits have been sustained, it is useful to draw a distinction between the continuation of the outputs and benefits originally financed by the project and the replication of outputs. For example, are the 62 rural water systems built by

SANAA in the 1960s continuing to supply water in the 1980s (continuation of original outputs)? Did SANAA continue to build water systems after A.I.D.'s assistance stopped (replication of outputs)?

From the viewpoint of sustainability, the replication of outputs and outcomes is especially important. Nevertheless, it should be recognized that replication was not an explicit objective in some of the earlier projects. An earlier project could succeed on its own terms, without the host country subsequently replicating the project's activities.

APPENDIX B

MALARIA ERADICATION PROJECTS {1}

1. INTRODUCTION

The significance of malaria as a major cause of morbidity and mortality in Honduras was first measured in surveys in 1942. Until 1959, malaria was the major cause of death in the country. For public health, however, the thousands of deaths from malaria are but the tip of the iceberg; malaria causes hundreds or even thousands of times more cases of illness than deaths. The cost in human suffering is large, as is the loss of thousands of person-years of labor. The disease has other important economic implications. Its control opened up the Pacific lowlands for significant population immigration from the mountainous interior, and then its resurgence (due in part to mosquito resistance to insecticides, which were also used by farmers) exposed the population once again to the disease.

The story of malaria control in Honduras is one of ups and downs. Successes were achieved when funding was sufficient and when the techniques employed were most appropriate. But following every period of advance up to the current one have been resurgences of the disease, resulting in part because the very success of program efforts created the illusion that the problem was solved and that funding could be decreased significantly. Following cuts in program funds, the number of cases inevitably rose, and by the time new funds were available, as was the case for both of A.I.D.'s major loans in the 1960s, the seriousness of the problem had increased significantly. Other major factors in periods of disease resurgence were resistance of the mosquito vectors to insecticides and lack of effective malaria programs in neighboring countries.

The organization of the antimalaria efforts of the Government of Honduras has been transformed over time. The Inter-American Cooperative Public Health Service (SCISP) created a service that initiated malaria control efforts in 1942. Then, as part of a worldwide campaign to eradicate malaria, the National Service for Malaria Eradication (SNEM) was created, functioning as an autonomous governmental organization from 1956 to 1966 and then as a semiautonomous governmental unit until 1979. Finally, malaria control efforts were integrated into a Division of Vector Control within the Ministry of Health in 1979.

A recurring theme in this history is the importance of

bilateral and multilateral assistance in planning and funding the Government's efforts against malaria. The following historical synopsis highlights these influences as well as other major implications of U.S. contributions specifically for the sustainability of malaria control efforts.

{1} Sources for this section include interviews with Jeff Stivers, Rigoberto Alvarado, Carlos Pineda, and Barry Smith (see Appendix I), and the following documents: Government of Honduras (1970); Mason (1963); Morton (1968); Stivers and Roberto (1981); USAID/Honduras (1965); USAID/Honduras (1969a); USAID/Honduras (1971a); USAID/Honduras (1980d); and U.S. DHEW and Public Health Service (1971).

2. HISTORICAL SYNOPSIS

2.1 The Inter-American Cooperative Public Health Service

Prior to 1942, there were few antimalaria activities other than individual treatment with drugs and some environmental control efforts assisted by the large banana companies and the Rockefeller Foundation on the north coast. In 1942, the Government of Honduras initiated activities under the administration of SCISP, a U.S. cooperative program that was beginning simultaneously in most Latin American countries (USAID/ASHONPLAFA 1982a; SCISP 1948; U.S. DHEW/Public Health Service 1952). The Institute of Inter-American Affairs provided some funding for SCISP and some of the top-level staff, but the Government of Honduras gradually assumed most of the costs, and Hondurans took over more and more of the technical positions. Beginning in 1950, the United Nations Children Fund (UNICEF) provided vehicles, supplies, and equipment.

From 1942 to 1948, antimalaria activities included entomological studies, malarimetric surveys, and disease control in selected localities through the application of larvicides (diesel oil and Paris Green) in Tegucigalpa, Choluteca, Amapala, and La Ceiba and drainage and releveling in Tegucigalpa and Choluteca.

At the same time, greater reliance was placed on two, more permanent control methods: draining and filling mosquito breeding sites. Some of the lined trunk drains that were constructed in Choluteca during this period are still in functioning condition.

In October 1949, an agreement was signed by the Government of Honduras, the Pan American Health Organization/World Health Organization (PAHO/WHO), UNICEF, and SCISP, for the purpose of increasing malaria control activities and proceeding to the eradication of the mosquito vector, *A. aegypti*, through the application of DDT in the interior of houses and the administration of antimalaria drugs. Partial coverage was achieved in each of the succeeding years through 1956.

During May and June 1950, residual spraying with DDT was started in 15 localities in the Departments of Lempira and Choluteca, with a population of about 15,000 people. During the next year, interior spraying was extended to 216 localities scattered throughout the country, with over a quarter million inhabitants directly protected; DDT application continued for several years at about the same level. Malaria control efforts

in the early 1950s were quite successful. From 1950-1951 to 1953-1954, mortality due to malaria dropped from 23.6 percent of all deaths to 7.4 percent.

The Fourteenth Pan American Health Conference held in Santiago, Chile in 1954 and the eighth World Health Assembly in Mexico the following year passed resolutions urging governments to proceed with the eradication (rather than just the control) of malaria from the continent and the world. In response, Honduras in December 1955 transferred its control programs to SNEM, a semiautonomous, vertically organized agency initially under SCISP administrative control.

2.2 The National Service for Malaria Eradication

SNEM's operations were programmed under the standard WHO 8-year malaria eradication scheme. This plan called for completion by 1957 of mapping, baseline entomological and epidemiological studies, staff recruitment and training, and deployment of equipment and supplies. These tasks were accomplished. Maintenance of a lethal residual of insecticide on the interior walls of all dwellings in malaria-prevalent areas and establishment of a case-finding and treatment network to measure the results were programmed for the following 4 years, 1958-1961. In theory, the spraying could have been stopped at the end of the period of attack and an intensified early detection and treatment program (consolidation) could then have been implemented to clear up the few remaining indigenous and imported cases that would occur in the final 3 years, 1962-1964. After this, it was anticipated that the country could be declared malaria-free.

Honduras's malaria eradication program, supported and administered by SCISP, received technical assistance from PAHO and material and equipment donated by UNICEF, by means of a tripartite agreement signed in February 1958. The attack phase started in 1958, using dieldrin for interior spraying in a yearly cycle, but vector resistance forced SNEM to discontinue use of this insecticide at the end of that year. Beginning in July 1959, DDT was used for interior spraying in twice yearly cycles.

Results of the attack measures were highly favorable during the first 5 years. In July 1962, a part of the malaria zone was shifted from the attack phase to consolidation, with other areas following in January and July 1963 and January 1964. After a February 1965 evaluation, some areas (with a population of 59,000) were moved back into the attack phase, but at the same time, an area of 90,000 persons moved to consolidation.

In December 1962, vector resistance to DDT was found in part of the southern area of Honduras, where insecticides were being applied on a large scale in cotton plantations. In July 1963, DDT spraying was discontinued in that area because of the continuous increase in vector resistance and in malaria cases. Spraying with malathion was started in that area, but because of a shortage of funds, could not be completed as planned. From January 1964 to February 1965, three more cycles were applied, but with considerable delay in each cycle because of lack of financial resources. There are indications that malathion had some effect in certain localities with vector resistance to DDT, but its effectiveness in interrupting transmission in the five cycles was not proven.

A 1964 evaluation concluded that the regions of anopheline resistance to DDT represented the only significant remaining problem areas in the country (USAID/Honduras 1965). In addition, because of a suspension of A.I.D. funds in 1963 (due to a military coup), SNEM had been unable to carry out programmed activities fully.

In October 1964, the Ministry of Health, with the assistance of PAHO and A.I.D., prepared a Three-Year Plan for 1965-1967. The plan called for continued DDT house spraying in attack-phase areas plus the complementary use of malathion and/or collective drug treatment. Mass treatment was successfully instituted in Marcovia Municipality (with a population of 16,000) in mid-1965 but could not be expanded because of a shortage of funds (Munguia 1966). Inadequate financing prevented the Three-Year Plan from being fully implemented. The incidence of malaria increased, and transmission became reestablished in some of the consolidation areas (U.S. DHEW/Public Health Service 1971).

The program's economic difficulties during 1964-1965 were due to A.I.D.'s reductions in assistance. In August 1966, SNEM received the first funds of an A.I.D. loan based on the Three-Year Plan prepared in 1964, but the malaria situation had deteriorated to such an extent by 1966 that the funds proved insufficient for implementing the required attack and surveillance measures (U.S. DHEW/Public Health Service 1971). A requested extension of the original loan was approved in September 1968. The spraying operations of the Three-Year Plan were started in July 1967 in an attack-phase area with almost a million people, including areas with varying degrees of vector resistance to the insecticide. The mass treatment that had begun in Marcovia was extended to cover a population of almost 150,000 inhabitants who lived in an area with vector resistance to DDT. At the same time, surveillance activities were intensified in the consolidation area, where just over a million persons lived.

In March 1969, the program was evaluated by an external evaluation group organized by PAHO and the U.S. Public Health Service. For the consolidation area, the group concluded that 59.6 percent of the population was free of transmission; that for 37.2 percent, the application of focal measures had to be intensified; and that the balance of efforts should go into the attack phase. In the area under attack phase with DDT, only 2.1 percent of the population was free of transmission and could be transferred to the consolidation phase, 82.5 percent showed a decrease in the parasitic incidence, and the balance did not show any progress or their condition had deteriorated. In the attack-phase areas using DDT and mass treatment, 49.5 percent of the population achieved a decrease of parasitic incidence to a satisfactory level, 38.7 percent achieved a less significant decrease, while incidence in the rest of the population continued to increase.

In 1970, a new 7-year plan of operations was begun with technical assistance from PAHO. A.I.D., however, provided no support for this plan, probably because of worldwide shifts in A.I.D. priorities. Judging from the final report of an A.I.D. malaria adviser in this period, malaria in Honduras was considered to be basically under control (Morton 1968). UNICEF likewise ended its support for Honduras's malaria eradication efforts in 1973. The results of the loss of external assistance -- which had provided approximately two-thirds of total funding since 1958 -- proved to be disastrous, as malaria cases rose significantly in the mid-1970s and the Government of Honduras

could not or would not make up the budget shortfall.

As the insecticide supply ran out in 1974, spraying was stopped, and malaria rates began to rise. After Hurricane Fifi hit the north coast that year, A.I.D. provided \$1 million to the Honduran Government for emergency relief measures. The Government purchased medicines, vehicles, and insecticides. When this supply ran out in 1975, field operations were again interrupted until late 1976. The majority of SNEM's trained and experienced personnel were lost as a result of repeated layoffs, and the quality of SNEM's work deteriorated.

In the late 1950s and 1960s, a network of village volunteers had been established to take blood samples and administer presumptive doses of antimalaria drugs. These volunteers were recruited, trained, and serviced by SNEM evaluators, who frequently picked up blood smears for delivery to SNEM diagnostic labs; replenished drugs, slides, and other supplies; and reported the results of samples diagnosed since their previous visit. The data thus generated were used by SNEM to evaluate progress, identify potential trouble spots, and follow up positive cases for curative treatment. This system deteriorated with the rest of the SNEM organization, and the size of the sample and the validity of the data decreased accordingly. The number of volunteer community collaborators dropped from 2,700 in 1970 to 695 in 1979.

In 1978, 21 years after the inception of SNEM's original malaria eradication campaign and 13 years after the country was scheduled to have been declared malaria free, the official malaria rates were slightly higher than they had been at the start of the program. Moreover, a team of experts estimated that in 1978 only one in five cases was being reported. SNEM was underbudgeted and beset with technical problems. At the recommendation of PAHO in 1979, the Government of Honduras changed its goal from eradication back to control of malaria. To implement this new approach, SNEM was officially disbanded and a Division of Vector Control (DVC) was created within the Ministry of Health. The Government of Honduras requested that A.I.D. and other donors assist the Ministry in formulating and funding the new program.

2.3 Division of Vector Control

The decline of SNEM was partly caused by the growth of the SNEM employees' union, which grew stronger and more militant during the 1970s (Edmonds et al. 1986a). The Government dissolved SNEM, firing all of its employees, in part to wrest control of the malaria program from the union. The reformist Ministry of Health leadership had intended to integrate SNEM into the Ministry, but these officials were replaced with the change in government in 1978 before they could carry out their plan. Thus SNEM was reconstituted for a short time with new staff, many of whom were former soldiers who had gained some spraying experience while serving in the army.

The DVC began its work in 1979 under difficult circumstances. Because of low levels of funding in the 1970s, SNEM staff lost their sense of mission and motivation. With repeated layoffs in the 1970s, many trained staff found new jobs and thus could not return when funds became available again. Older, experienced SNEM employees had retired. This meant that

the organization had to spend much time and money hiring and training new workers. The organization also had serious technical deficiencies during these years. As a result of poor or nonexistent data on malaria cases and vectors, SNEM invested a great deal of money and effort in geographical areas that should not have been a priority. These technical deficiencies were compounded by the decline in community participation under the volunteer collaborator system.

In 1979, the new DVC experimented with a system of vector control auxiliaries. Although they received little training themselves, these paid workers were to train community members to apply insecticides in their own communities. This scheme was designed around the use of DDT, which is not particularly hazardous to apply. When the program was finally instituted, however, the DVC was switching to Fenitrothion, which is too toxic to be applied by untrained community members. Thus the plan to use community sprayers was ended quickly.

Since 1980, the DVC has made good progress in recuperating from the losses of SNEM's declining years. Substantial foreign assistance has once more become available. PAHO has a long-term adviser to assist the program. A.I.D. has contributed \$1.124 million through Health Sector I and also the services of an adviser in entomology. The Government of Japan has made three grants worth a total of \$4.55 million in equipment, insecticide, and vehicles.

This support has been complemented by the strengthening of the DVC as an organization. In 1981, the auxiliaries were replaced by sprayers, evaluators, and larvae-control workers who earned their jobs competitively and completed rigorous training programs. Almost all of these new employees, who include some former SNEM staff, are still working for the program. A new, partly computerized information system has facilitated program operations. More cost-consciousness has led to a change in strategy that emphasizes spraying and larval control in areas of high malaria incidence. Vector habits are better studied. The DVC has established an engineering unit to focus on drainage. Local entomological assistants have been trained and are conducting vector-density sampling to monitor effectiveness. The number of trained volunteer collaborators increased from 695 to 5,600 from 1979 to 1985. Finally, case finding has become increasingly aggressive. In 1980, 175,623 slides were checked, with 43,010 positive cases; in 1985, 410,720 slides were checked, of which 33,828 were positive. Turnaround time for checking samples and informing patients has improved. The net result has been an annual decline in cases of malaria for every year but one of the past five.

Logistics remains a problem. Microscopists are poorly distributed and do not appear to be transferable within the Ministry of Health system. Drugs for malaria treatment are often unavailable at health posts in high-prevalence areas. During 1984-1985, there was a lack of insecticides for house spraying. Lack of repair capability for microscopes and other equipment limits the ability to improve laboratory support. Vehicle breakdowns and lack of equipment also hamper spraying and drainage activities.

Organizationally, the DVC is much less independent than the autonomous SNEM organization, yet it is not fully integrated into other Ministry of Health activities. Regional Ministry directors have some control over DVC workers, but a separate supervision

system is in place and apparently improving. There is some integration with the Rural Penetration Program for case detection and treatment.

3. SUSTAINABILITY OF U.S. GOVERNMENT SUPPORT FOR MALARIA ERADICATION

The U.S. Government has assisted Honduras off and on since 1942 in the control or eradication of malaria. SCISP identified malaria as a major public health problem and made good progress over the years in controlling the disease. Total U.S. contributions at the time may have been about \$1 million. In close cooperation with WHO/PAHO and the Government of Honduras, A.I.D. provided significant, although not always consistent, financial support for the malaria eradication efforts of 1958-1969. U.S. contributions totaled approximately \$5 million, somewhat more than the Honduran budgetary contributions. (Budget figures reported in this case study should not be considered definitive, because there is much conflicting information among different sources.) Finally, after an interval of 9 years of no significant support, the United States began again (since 1980) to provide both technical and financial support to the Honduran Government's malaria control efforts.

The checkered history of U.S. support for malaria control in Honduras is analyzed below through a discussion of the major issues relating to sustainability.

3.1 National Commitment to Project Goals

The Government of Honduras has remained committed to the goal of malaria control or eradication since the seriousness of this disease as a public health problem was first quantified in surveys in the early 1940s. A.I.D. and other external donors have supported this goal substantially except for the period 1969-1979. The lack of support in this period led to serious setbacks. It is difficult to gauge Honduran Government commitment based on its budgetary contributions, but it is clear that Government funds alone have never been sufficient to reduce the malaria problem. Since 1980, the percentage of costs paid by Honduran Government funds has increased substantially.

3.2 Project Negotiation

A.I.D. and PAHO had major roles in determining national malaria strategies until the DVC was formed in 1979. The organization of efforts in Honduras has followed the same pattern as in other countries of the Americas and, during the eradication efforts of the late 1950s through the 1970s, the worldwide pattern advocated by WHO. Based on its current strong leadership, the DVC has solicited advice and assistance from donors but has made major strategic decisions more independently. With a change in leadership, this pattern could change again.

The SNEM program, which was designed and operated according to international guidelines, has been criticized in some quarters for being too rigid. It was said to have overemphasized spraying, even after mosquito resistance was evident, rather than

taking a more comprehensive approach that would have included more emphasis on drainage, treatment, and housing improvements. SNEM's rigid organization also made it very difficult to collaborate with other Government health programs.

3.3 Institutional Organization of Project

Malaria control and eradication efforts in Honduras remained autonomous through the years they were overseen by SCISP (1942-1956), SNEM (1956-1979), and the DVC (1979-the present). As in most countries, malaria control has been perceived to be most appropriately organized through vertical structures.

In Honduras, organizational effectiveness has seemed to depend more on funding levels than on organizational structure, as the familiar pattern of declining case load led to declining funds and then to increasing case load, time after time. Funds alone, however, are not sufficient. Malaria eradication is a very technical undertaking that requires specific expertise for situational analysis and development of appropriate strategies. A vertical organization, with its often relatively efficient and standardized procedures and high esprit de corps, has many advantages. An A.I.D. adviser in 1963 noted SNEM's close control over expenditures, property utilization, and personnel management; efficient system for vehicle maintenance; excellent systems of passive surveillance and for reporting and analysis of field activities; and effective coordination among donors (Mason 1963). An A.I.D. Capital Assistance Paper in 1965 described SNEM personnel as competent and dedicated (USAID/Honduras 1965). Achieving these program characteristics in an integrated Ministry of Health program is much more difficult, as budgets are almost uniformly low and political influence over personnel selection is chronic. Yet, vertical organizations in Honduras seem inevitably to incite jealousy that eventually weakens them and leads to their integration.

Thus, while integration is most palatable politically, in the Honduran context it brings along some problems. Current DVC leaders point out how difficult it is to work through the Ministry of Health's seven regional directors, who have been replaced an average of once a year over the past 5 years. Each new regional director needs to be oriented to the program. Once oriented, a new director may remain only a short time before being replaced. Although the current, strong direction of the division has protected it somewhat from the politics and inefficiencies common in the Ministry, problems still abound. Salary, travel, and per diem payments are regularly months behind. Vehicle repair is slow or impossible. Politicians constantly attempt to influence personnel selection. Funds are commonly taken from the DVC at the end of the year to make up shortfalls in divisions that have overspent their budgets.

The experience of SNEM in the 1960s and 1970s, however, demonstrates that the mere fact of a vertically organized program does not guarantee its effectiveness in the face of insufficient funding, as occurred in the organization's declining years.

3.4 Financing

Insufficient and inconsistent financing, as already noted, has been a crucial factor in the years when malaria has made

comebacks, mostly in the 1960s and 1970s. While community participation is crucial for the success of malaria control efforts, direct community financing plays a minor role. Community contributions through the work of the volunteer collaborators and the community as a whole in cleanup and drainage projects, however, have been essential to program success.

In budgetary terms, foreign aid has been extremely important to Honduras's malaria control efforts. During the SCISP period, the U.S. Government contributed approximately a third of overall project costs and, presumably, of malaria project costs. In the 1960s, the Government of Honduras contributed around \$4 million to SNEM's operations; A.I.D., \$5 million; UNICEF, \$2 million; and PAHO, \$1 million, mostly in technical assistance. This assistance was particularly important because much of it went to purchase insecticides, equipment, and vehicles for which the Government would have had to spend scarce foreign exchange. The lack of continued U.S. and UNICEF assistance in the 1970s was clearly a major factor in the decline and dissolution of SNEM. In the period since 1980, the Government of Honduras has contributed approximately \$21 million to the DVC (approximately 80 percent for malaria control); the Government of Japan, \$4.750 million; and A.I.D., \$1.124 million. So while foreign assistance remains significant, the Government's share is substantially greater than it has been in the past.

3.5 Technical Assistance

WHO/PAHO and U.S. personnel have played major roles in program evaluation and planning. PAHO has provided many long-term advisers and A.I.D. many short-term advisers and evaluators over the years. Each of these groups currently has a long-term adviser to the program. This technical assistance has no doubt strengthened the malaria programs and increased the chances for sustainability. Unfortunately, the funding and technical problems already discussed lessened the long-term value of technical assistance, as many Honduran counterparts were lost to the program in political and economic layoffs of personnel.

3.6 Donor Coordination

Donor coordination -- mainly among A.I.D., PAHO, and UNICEF -- appears to have operated fairly smoothly throughout much of the history of malaria control efforts in Honduras. Since 1980, the DVC has for the first time taken the principal initiative in preparing malaria program plans and has come to donors with the basic plan in hand, asking mainly for their financial assistance in implementing it.

However, there were obvious risks for sustainability in the overlapping of donor activities. When both A.I.D. and UNICEF terminated their support for Honduras's malaria eradication efforts in close succession, the results were disastrous as malaria cases rose significantly.

3.7 Training and Personnel Sustainability

U.S. Government support for malaria control facilitated the training of thousands of staff and volunteers over the years.

Unfortunately, the long-term value of these trained individuals was greatly diminished by the layoffs caused by budgetary shortfalls in the 1960s and 1970s. With each new budgetary crisis, trained workers were lost to the program, sometimes to return but sometimes not.

On the positive side, most of the trained personnel survived the transition that occurred with SNEM's takeover of SCISP's malaria control efforts in the late 1950s. In the years that followed, however, some of these people were lost because of political shifts and layoffs caused by lack of funds. Although all SNEM workers were fired in 1978, some of them returned in the early 1980s after the institution of merit-based competition for positions in the DVC.

3.8 Community Participation

The potential for community participation in malaria control programs is great, given the public's wide recognition of the problem and high motivation to do something about it. As described in Section 2, the extent of community participation in malaria control has varied significantly over time. Thousands of communities have responded to program requests that they elect a volunteer collaborator and that they work with him or her to carry out such useful activities as clearing sources of standing water and cleaning up garbage and brush around houses. In addition, volunteers have taken thousands of blood samples, begun presumptive treatment, and completed treatment when laboratory tests confirmed malaria.

SNEM began to expand this corps of volunteers in the late 1950s. The reported number of volunteers was 2,700 in 1970 and 695 in 1979, and is 5,600 today. Today's volunteers undergo a 2-week training period. They include many people who first served as volunteers in the late 1950s and 1960s. The DVC organized about a dozen communities in 1986 for major cleanup campaigns and to form health committees to maintain the gains.

One historical problem with community participation in this program appears to have been occasional confusion in communities due to the lack of coordination between the malaria program and other Ministry of Health programs (Eoff 1980; Martin 1981). Also, because community participation was initiated by the program and independent community decision-making was not actively encouraged, participation was dependent on the constant support of malaria program staff. In the period when the program was weakest, community participation declined in parallel.

3.9 Effectiveness

Although the effectiveness of U.S. support to Honduras's malaria control efforts would clearly have been enhanced by more consistent funding that avoided periods of decline or complete cutoff, U.S. support has clearly had many short- and medium-term benefits. First and foremost, it has enabled the Government of Honduras to save thousands of lives and prevent millions of person-days of incapacitation per year caused by bouts of malaria. Indirect effects include increasing net annual income, reducing medical expenses, reducing the demand on the public health system, and increasing productivity in the educational system through increased teacher and student attendance. U.S.

assistance has facilitated the development of valuable human resources by training malaria control specialists. Along with UNICEF assistance, A.I.D. support to malaria programs allowed Honduras to save millions of dollars in foreign exchange that it could not have found in its own budgets.

APPENDIX C

RURAL WATER SYSTEM PROJECTS

1. INTRODUCTION

U.S. Government assistance for Honduran water systems began in the early 1940s and has continued in various forms to 1986. In the 1940s and 1950s, the United States funded the Inter-American Cooperative Public Health Service (SCISP), which included the construction of rural water systems among its activities. In the 1960s and again in the 1980s, A.I.D. funded the water system construction activities of the National Water and Sanitation Service (SANAA). In the 1970s, A.I.D. provided support to the Rural Penetration Program, which, among many other activities, built simple water systems for very small communities (typically fewer than 30 houses).

The present analysis focuses on the A.I.D. project of the 1960s -- Rural Water Supplies (A.I.D. project no. 5220044) -- through which SANAA built 62 water systems. Data were available describing these systems as they were built and as they were originally operated and maintained. Detailed data were also available for most of these systems from a 1983-1984 SANAA survey describing their condition, the population served, and costs of operation and maintenance. These data make it possible to determine that, in general, project outputs and outcomes did continue after the end of A.I.D.'s assistance to this project in 1970. Available data also facilitated an examination of possible causal factors that may have contributed to the continuation of the project's outputs and outcomes.

The remainder of this appendix is organized in four sections; Section 2 briefly discusses the period prior to the beginning of A.I.D.'s Rural Water Supplies project in 1962. Section 3 uses the matrix from the present study's methodology to describe the design and functioning of the project during the 1963-1970 project period. Section 3 also includes information pertinent to the sustainability themes that are discussed in Section 5. For the postproject period (1971-1986), Section 4 examines the continuation of project outputs and benefits (outcomes) and discusses other rural water supply activities. Section 5 presents a discussion of the factors that may have contributed to the postproject continuation of outputs and benefits.

2. PREPROJECT PERIOD: 1942-1961

Between 1942 and 1961, SCISP constructed in Honduras some 141 rural water systems, as well as four water supply projects in Tegucigalpa and San Pedro Sula. Both the U.S. Government and the Government of Honduras supported SCISP's construction activities. Local communities raised funds to help pay for their water

systems.

The process of building a village water system typically began with a request for SCISP assistance from representatives of the village. SCISP would then carry out a technical study to determine the type of system needed, the necessary material and skilled and unskilled labor inputs, and the cost. The community was required to contribute 50 percent of the cash outlays, although SCISP's donations of materials was not included in this budget. SCISP then presented the plan to the community, which had to raise its cash contribution before the construction could begin. SCISP staff and contractor personnel would then construct the system, with the village providing some locally available materials (sand, for example). The project would also employ men from the village as unskilled workers, paying them in cash. Upon completion, the water system would be turned over to the village (to a municipality or to a local junta), which would be responsible for its operation and maintenance.

Subsequent evaluations of the SCISP-built systems indicated that the municipalities and local communities did not have the technical, economic, or administrative capacity to operate and maintain their water systems and that the majority of the systems had deteriorated and some had even been abandoned. To resolve these problems, the Government of Honduras and the U.S. Government favored the creation of a national organization that would be responsible for the study, construction, operation, and maintenance of water and sewerage systems. SCISP was given the responsibility of creating such an organization. Enabling legislation was passed on April 26, 1961, and SANAA began functioning on January 1, 1962.

Despite the progress made by SCISP, in 1962 much of the rural population did not have ready access to potable water, and water-related diseases seriously affected rural Hondurans. Thus the newly created SANAA faced the challenges of constructing new water systems for communities lacking such systems and of operating and maintaining existing systems.

3. RURAL WATER SUPPLIES PROJECT: 1963-1970

3.1 History

In December 1961, SANAA requested U.S. funding for rural water systems. During the next year and a half, SANAA and A.I.D. discussed the design of the project, including financial aspects and the communities to be selected. In June 1963, SANAA was notified that A.I.D. had authorized a loan of \$1.05 million (or its equivalent) for the construction of 24 systems. The formal contract was signed on August 23, 1963. The project was concluded with the completion of the water system at Esparta on September 15, 1970.

3.2 Design

The "design" of the project must be inferred from available materials and interviews. Neither an A.I.D. Project Paper nor a postproject evaluation has been identified; probably neither was ever prepared. This project was designed and completed before A.I.D. adopted its logical framework approach. Moreover, the project's scope changed as it was implemented, notably by the

addition of more water systems.

The project design, which is summarized in Table C-1, is narrowly oriented to the construction of water systems for particular communities. Notably absent are any mention of outcomes and outputs related to building SANAA's institutional capacity so that it could continue constructing well-designed water systems after the project ended.

3.3 Operation and Results

In general, the project operated well and achieved good results. The following subsections discuss the operations and results for the period of project implementation, using the design matrix elements.

3.3.1 Inputs

As shown in Table C-1, the A.I.D. loan of \$1.05 million contributed to the construction of 62 water systems -- far exceeding the number of systems envisioned in the design. The contributions of A.I.D., SANAA, and the communities toward the direct cost of construction of the 62 water systems were as follows:

A.I.D.	\$1,050,000	(76.3%)
SANAA	73,682	(5.4%)
Communities	252,911	(18.4%)
Total	\$1,376,593	(100%)

In addition, SANAA provided the equivalent of \$391,000 in indirect costs.

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Table C-1. A.I.D. Rural Water Supplies Project (5220044)
Design Matrix

Matrix Element	Rural Water Supplies Project Design
Goals	Improved health of villagers Improved economic condition of villagers
Objectives	Reduction in time and effort expended in obtaining water Reduction in water-borne diseases
Outcomes (Benefits)	Increase in quantity of water supplied to homes Increase in quality of water supplied to homes

Outputs	24 water systems constructed according to specifications
	24 water systems operated and maintained
Process	SANAA works with community
	A.I.D. provides technical assistance to SANAA
	SANAA builds system
	SANAA hires villager to administer and operate system
Inputs	A.I.D. loan of \$1,050,000
	A.I.D. technical assistance
	SANAA budgetary support
	Community participation

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Most of A.I.D.'s support was for materials, but the Agency also funded some technical assistance. Although training was not an element in the project design, it is likely that some on-the-job training occurred through the natural interaction of the A.I.D.-provided technical assistance personnel and SANAA officials and staff. Thus A.I.D.'s inputs to the project were a mixture of material and human resource components, weighed heavily toward the former.

A.I.D.'s funding of water systems continued throughout the project, even as new communities were added to the program. There is no evidence that A.I.D. or SANAA tried to gradually reduce the U.S. share of funding during implementation in order to facilitate postproject continuation of the construction program by SANAA. Neither was such a reduction part of the project design.

3.3.2 Process

The implementation process, while varying in detail, followed the main elements of the project design.

SANAA required that the community have an organization with legal standing (*persona juridica*) with which SANAA could work. Following a study of the design and preparation of the budget, the community was required to contribute at least 20 percent of the budget, a standard that was reportedly met in each of the 62 communities. Each community signed a written contract with SANAA. Unlike the community's contribution under the SCISP program, most of the contributions under the A.I.D. project with SANAA could take the form of in-kind contributions of local materials and unskilled labor. Only a small amount had to be contributed in cash.

SANAA employed a group of "promoters," who worked directly

with the communities. These individuals had previously worked as promoters for the Ministry of Health and were temporarily transferred to SANAA for the project. SANAA paid their salaries, but they retained the right to return to the Ministry when the project ended. This coordination between SANAA and the Ministry of Health was very successful.

SANAA constructed each system using its own skilled personnel, generally one engineer (in charge of three or four projects), a construction superintendent, two bricklayers, a plumber, an administrator, an office helper, and laborers paid either by the community or by SANAA, depending on the terms of SANAA's contract with the community. No labor problems arose during the project, and SANAA enjoyed excellent relations with the communities.

As planned, SANAA employed a villager to administer and operate each system. During the construction phase, SANAA personnel would keep an eye out for an active and competent villager who could be employed to administer and operate the system. Operation and maintenance of the system was generally a simple task, except for the few systems that used pumps instead of gravity. The villager selected to operate the system also collected and deposited the monthly user fees and spent them as necessary to operate and maintain the system. For any complex problems with the system, SANAA would be called.

Because SANAA was created as a vertical organization to build, operate, and maintain water systems, it is not surprising that it devoted its energies to doing just that. Both during and after the project period, it maintained its commitment to these goals.

Data on the chronology of one of the technical assistance components of the project suggest that the initiative for the technical assistance and its scope originated with A.I.D. In May 1964, A.I.D. sent a letter to SANAA discussing the possibility of using a consulting firm to check the design and construction of the systems to be built under the A.I.D. loan. The letter mentioned that A.I.D. was negotiating a contract with the firm of L. Bell & Associates that would cover work for approving the plans, specifications, and feasibility studies prepared by SANAA and for checking the construction and inspection procedures for the systems. That same month, Mr. Bell arrived at the Tegucigalpa office of SANAA to begin the work.

Detailed information is not available on all the technical assistance activities. A long-term technical adviser, Fred Alvarez, a Mexican-American engineer, worked for several years at SANAA. He evidently played a major role in reviewing plans and in assisting with the preparation and review of bid documents for materials. The firm of L. Bell also contributed significantly to the broadening of the project from 24 to 62 communities, at no additional cost to A.I.D. but at some increase in the cost to SANAA. The expansion to 62 communities was also made possible by the substitution of cheaper local materials; technical assistance reportedly played an important role in identifying opportunities for such substitutions.

Reportedly, A.I.D. and SANAA generally worked well together on this project. The U.S. Government was supportive of the creation of SANAA; SANAA and A.I.D. were both committed to achieving the project's goals. Although technical assistance may have been introduced into the project at A.I.D.'s initiative, it

was reportedly productive and well received.

During the project years, international donor/lender coordination was not a concern because A.I.D. and SANAA were funding most of the water systems constructed during that period (see Table C-2). Even in later years, when several donors were simultaneously funding many water systems, SANAA worked with them individually, and they reportedly did not coordinate their programs to any significant degree.

In short, all four elements in the project process (Table C-1) generally worked well -- SANAA's work with the community, SANAA's employment of a villager to administer and operate the system, SANAA's construction of the system, and A.I.D.'s provision of technical assistance.

3.3.3 Outputs

Planned project outputs were exceeded. A total of 62 water systems were built -- far exceeding the 24 systems planned.

These systems were all operating in 1970, the last year of the project. SANAA data indicate that all 62 were operating as of 1978 and that all the systems included in a 1983-1984 SANAA survey were also operating, albeit in some cases at a reduced level of service. Both of the project's planned outcomes -- increases in the quantity and quality of water -- were achieved. The water systems resulted in more households having direct access to water. Water quality increased sharply in relation to the communities' previous sources, which were usually polluted rivers and streams and contaminated spring outlets. The systems themselves, however, did not treat the water (as, for example, disinfection with chlorine).

3.3.4 Objectives

Although direct data are not available, it is obvious that the provision of water directly to homes reduced the time and effort villagers expended in obtaining water.

The water systems reportedly did reduce the incidence of water-borne diseases, in part due to the better quality of the water provided by the systems compared with the previously used sources of water. It is not known, however, to what extent complementary health measures (washing hands, use of latrines) were taken to maximize the health benefits.

Table C-2. Water Systems Constructed by SANAA
by Source of Funding, 1964 to 1985

Year	Source of Funding (number of systems)						Total	Percent
	SANAA	A.I.D.	UNICEF	CARE	IDB	Others		
1964	4						4	0.4
1965	4	1	2				7	0.8
1966		16		4	2		22	2.4
1967	1	24		1	4		30	3.2

1968	1	9					10	1.1
1969	1	8					9	1.0
1970	5	4					9	1.0
1971	3		8		6		17	1.8
1972	3		13				16	1.7
1973	2		9				11	1.2
1974			11				11	1.2
1975			18				18	1.9
1976			21	9			30	3.2
1977			23	22			45	4.8
1978				46			46	4.9
1979			38	39			77	8.3
1980			52	22			74	7.9
1981		18	14	16			48	5.1
1982		55	30	31			116	12.4
1983		59	33	55			147	15.8
1984		35	25	16			76	8.1
1985		52	40		18		110	11.8
Total	24	281	2	340	262	24	933	100
Percentage								
	2.6	30.1	0.2	36.4	28.1	2.6	100	

3.3.5 Goals

In light of the above discussion, it is clear that to some extent the health of villagers was improved. Although reduction of time and effort in obtaining water and improved health both create the opportunity for an improvement in the economic condition of villagers, specific data addressing this point are not available.

4. POSTPROJECT: 1971-1986

4.1 Continuation of Project Outcomes and Outputs

The project exceeded its output target: 62 water systems were built, rather than the 24 originally planned. The 62 water systems continue to operate. In many communities, the systems now serve a much larger population than when they were built. To some extent, such expansion was anticipated; the data from the 1960s show that the population size projections in the design often comfortably exceeded the initial population served.

The low levels of expenditures on administration, operation, and maintenance have weakened the continuation of such projects. Project and postproject data also indicate that user fees are not enough to cover even administration, operation, and maintenance costs, so funds are unavailable for replacing the basic facilities (tanks, major pipes, and pumps) as they wear out. Such deficits at the community level place greater demands on SANAA's budget.

The 62 water systems do not treat the water and were never designed to do so; recent testing indicates that the water is of acceptable but not excellent quality.

In short, the quantity of water supplied may have declined a little (service is not provided 24 hours per day in some communities), and there may have been a modest deterioration in the quality of water provided. But some 20 years after their construction, the water systems in the 62 communities continue to provide water of acceptable quality. This result is in marked contrast to the fate of the SCISP projects, the majority of which had deteriorated significantly by 1961.

4.2 SANAA Activities

As noted above, the design of the project apparently did not encompass strengthening the institutional capacity of SANAA so that it could build, operate, and maintain water supply systems on its own in other communities. It is worth noting that SANAA in fact has continued to construct water system, as indicated by Table C-2. From 1964 through 1970, SANAA water systems were financed primarily by A.I.D. (62 systems) and by SANAA itself (16). In 1971, CARE began to fund large numbers of water systems, and in 1976 the Inter-American Development Bank (IDB) began to do so. In 1981, A.I.D. resumed funding of water systems, this time through its Rural Water Supply and Sanitation Systems project (no. 5220166). From 1964 to 1985, the most important sources of funding for the 933 community water systems built were CARE (36 percent of the systems), A.I.D. (30 percent), and IDB (28 percent). The prospects are that such foreign funding will continue for some time. The IDB approved a \$24-million loan to SANAA in 1985, and A.I.D. continues to provide assistance under a current project.

In the 1970s, the Ministry of Health also began to build water systems in very small communities (generally fewer than 30 houses) through the Rural Penetration Program and the Ministry's promoters. Larger and more complex systems remained the responsibility of SANAA. This Ministry program continues and is assisted by the current A.I.D.-supported PRASAR project, which has three main components: assistance to SANAA, a health component, and an education component. The latter two components are under the Ministry of Health, and coordination problems persist among the three components.

SANAA's pace of activity has picked up fairly steadily since 1976. As shown in Table C-2, the largest number of systems built in the 1960s was 30, in 1967. That number was matched in 1976 and has been exceeded every year since through 1985. In 1983, a high of 147 systems was reached. That year, as indicated in Table C-3, also represented a high in terms of total cost (12 percent of the cost between 1964 and 1985, in constant 1966 lempiras) and in design population (15 percent of the total between 1964 and 1985). Continued construction of new systems is anticipated. But the dependence on foreign construction funds continues to this day.

5. SUSTAINABILITY

Project results are summarized in Table C-4 for project outputs and benefits both for the project as designed and for elements related to institutional capacity that were not in the design.

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Table C-3. Construction Cost of Water Systems
Constructed by SANAA and Planned Population Coverage, 1964-1985

Year	Cost in Current Lempiras	Cost in Constant 1966		Planned	
		Amount	Lempiras Percentage	Population Amount	Coverage{a} Percentage
1964	140,325	144,325	0.7	3,800	0.4
1965	229,016	233,970	1.1	10,300	1.0
1966	1,227,959	1,227,959	5.7	49,000	4.8
1967	2,145,556	2,064,829	9.6	99,300	9.7
1968	827,598	786,823	3.6	26,100	2.6
1969	428,139	393,519	1.8	12,400	1.2
1970	469,184	420,838	2.0	9,900	1.0
1971	376,237	331,603	1.5	21,300	2.1
1972	359,009	303,334	1.4	17,000	1.7
1973	279,256	221,342	1.0	18,400	1.8
1974	356,849	253,204	1.2	15,700	1.5
1975	408,548	265,255	1.2	22,900	2.2
1976	1,056,465	632,431	2.9	30,700	3.0
1977	2,325,730	1,226,943	5.7	61,300	6.0
1978	2,131,822	1,051,937	4.9	52,700	5.2
1979	3,264,282	1,495,602	6.9	91,800	9.0
1980	4,134,857	1,715,932	8.0	66,400	6.5
1981	3,429,573	1,353,557	6.3	38,000	3.7
1982	6,075,832	2,233,538	10.3	67,400	6.6
1983	7,720,016	2,675,993	12.4	152,500	15.0
1984	2,959,240	986,413	4.6	60,800	6.0
1985	4,857,900	1,561,700	7.2	91,700	9.0
Total	45,203,103	21,581,048	100.0	1,019,400	100.0

{a} Planned population coverage was unavailable for the 18 systems funded by the Ministerio de la Presidencia and Fondos PROCARPA; benefited population was used instead.

Table C-4. Results During and After the
Rural Water Supplies Project, 1963-1970

Design Elements	Results During Project 1963-1970	Results After Project 1971-1986
Outcomes (benefits)		
Increase in quantity of water supplied to homes	Achieved	Largely sustained
Increase in quality of water supplied to homes	Achieved	Largely sustained
Outputs		
24 water systems constructed according to specifications	Achieved (62 built)	Not applicable

24 water systems operated and maintained	Achieved	Largely sustained
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Outcomes (benefits)

----- Improve SANAA's institutional capability	Achieved	SANAA strengthened as an institution
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Outputs

----- Water systems constructed	Achieved	SANAA continues to build water systems
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Tables C-5 and C-6 assess the relative importance of the sustainability factors in contributing to the continuation of outcomes and outputs. Table C-5 addresses only the end outputs in the project design. Table C-6 is concerned with how the project may have contributed to SANAA's success in continuing build, operate, and maintain water systems.

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Table C-5. Sustainability Factors and Postproject Results of the Rural Water Supplies Project: Design Outcomes and Outputs, 1963-1970 (relating to the 24 planned water systems)

Sustainability Factors	Contribution to Continuation of Outcomes and Outputs
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Commitment to Goal

----- Honduran Government, SANAA, communities, and international donors committed to water system programs	Moderately important
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Institutional Organization of the Project

----- SANAA was and continues to be a very vertical organization	Important
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Financing

----- Honduran funds continue to be used for operation and maintenance	Important
---	-----------

Honduran capital funds not substituted for foreign funds during project	Unimportant
---	-------------

User fees pay only part of operation and maintenance costs	Moderately important
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Technical Assistance

At the outset, SANAA apparently did not set the objectives of or direct the technical assistance	Unimportant
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Host country nationals acquired skills during implementation	Moderately important
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Table C-6. Sustainability Factors and Postproject Results of the Rural Water Supplies Project: Nondesign Outcomes and Outputs, 1963-1970 (relating to SANAA capability to continue to build water systems)

Sustainability Factors	Contribution to Continuation of Outcomes and Outputs
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Commitment to Goal

Honduran Government, SANAA, communities, and international donors committed to water system programs	Very important
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Institutional Organization of the Project

SANAA was and continues to be a very vertical organization	Very important
--	----------------

Financing

Honduran funds continue to be used for operation and maintenance	Important
--	-----------

Honduran capital funds not substituted for foreign funds during project	Unimportant
---	-------------

User fees pay only part of operation and maintenance costs	Moderately important
--	----------------------

Technical Assistance

At the outset SANAA apparently did not set the objectives of or direct	Unimportant
--	-------------

the technical assistance

Host country nationals acquired
skills during implementation

Moderately important

APPENDIX D

FAMILY PLANNING PROJECTS

1. INTRODUCTION

A.I.D. support to family planning programs in Honduras spans a period of approximately 20 years, beginning in 1965 with the signing of the first project agreement (5220065). A.I.D. assistance to family planning has had three distinct project designs. The first project, Maternal and Child Health/Family Planning (1965-1976), was a highly vertical, largely A.I.D. managed operation. The second, Integrated Rural Health/Family Planning (1976-1981), was a highly integrated project in which the family planning component was negligible. And the last, from 1981 to the present, is a component of Health Sector I, which appears to fall between the earlier efforts with both vertical and integrated characteristics. The first project is discussed in some detail below; the last two are briefly noted here and in Appendixes F (Rural Penetration Program) and G (Health Sector I project).

2. MATERNAL AND CHILD HEALTH/FAMILY PLANNING PROJECT

2.1 Project Description

In the early 1960s, prior to the initiation of A.I.D. support to the Government of Honduras, the International Planned Parenthood Federation (IPPF)-affiliated Honduran Family Planning Association (ASHONPLAFA) began providing family planning services. In 1965, in response to ASHONPLAFA promotion efforts, the Honduran Government agreed to institute a national family planning program through the Ministry of Health. In 1966, USAID/Honduras began its major family planning project (Maternal and Child Health/Family Planning project) by assuming almost all direct costs of the Government's efforts, including training, equipment, and salary incentives for Ministry of Health personnel; administrative and educational services; and materials. Contraceptives were supplied by IPPF and the Population Council. This project lasted until 1976.

The project goal was to contribute to a reduction in the population growth rate from 3.6 percent in 1968 to 2.9 percent in 1974 (USAID/Honduras 1971b). Although project documents report that the 1974 census found an annual rate of population growth of 2.8 percent, a level below that projected by the project designers, and attributed the drop in growth rate to the program (USAID/Honduras 1975d), these calculations were subsequently found to be in error, with the growth rate more likely to have been about 3.5 percent (Hill 1980).

The project objectives, with respect to number of women using contraceptive services, changed significantly over the years, as is apparent in Table D-1.

A Family Planning Unit was established within the Ministry of Health, but it operated largely independently of other Ministry structures. This unit directed training of administrative and clinic personnel, both overseas and in country. The trained personnel worked in specially designated portions of Ministry clinics reserved only for family planning. The Family Planning Unit set up separate accounting, service statistics, and all other administrative services (e.g., supervision) to manage the family planning service program. This degree of verticality was repeatedly described in A.I.D. documents as necessary to avoid bureaucratic obstacles and to facilitate accounting and control of A.I.D. funds.

Following the election of President Cruz in 1971, project documents indicate that consideration was given to the prospect of integrating the Family Planning Unit into the administrative structures of the Ministry by 1973 (USAID/Honduras 1971b). After the Lopez Arellano coup in 1972, the new Minister of Health was believed to be in favor of the program but wanted to have it completely integrated into the Ministry. A sweeping reorientation of health service delivery known as the Rural Penetration Program (see Appendix F) was taking place.

A.I.D. documents in 1972 indicate that the Ministry was working on plans for integration, which were to be presented to the National Congress for approval in May or June. In March 1973, A.I.D. documents indicate that the Minister and the Sub-Secretary of Health wanted to delay the integration of the family planning program until plans could be formulated for financial and program support (USAID/Honduras 1974b).

By December 1974, plans for integrating family planning were progressing. A.I.D. documents indicate that by the end of 1975, the Ministry would pay all salary and administrative costs of the family planning project from its regular budget on a continuing basis, and that the administrative structure would be completely integrated with other offices of the Ministry (USAID/ Honduras 1975d). In addition, the Ministry was to establish 83 new civil service positions to absorb family planning staff and was to pay them severance pay as required by law prior to the formal transfer of employees to the civil service. By March 1975, the program was administratively integrated into the Ministry. A.I.D. financial input for this project totaled \$3.774 million over 11 fiscal years. Unfortunately, the overall evaluation done in mid-1975 (USAID/Honduras 1975d) does not analyze these expenditures, nor does it discuss the costs of various project elements.

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 Table D-1. Objectives of Maternal and Child Health/Family Planning Project: Family Planning Users, Projected and Actual, by Document Source and Year of Achievement, 1971-1975

Document	1971	1972	1973	1974	1975
A.I.D. Project Paper		32,000			
A.I.D. Project Paper Rev. 1/70	40,000				

A.I.D. Project Paper Rev. 2/71	(31,000)	130,000 MOH{a} 35,000 Commercial
1972 Evaluation	(26,103 cumulative)	
1973 Evaluation	(35,000 MOH) (10,000 ASHONPLAFA) (17,300 commercial)	130,000 including 75,000 MOH
1974 Evaluation	(44,000 MOH) (13,000 including ASHONPLAFA) (20,000 commercial)	107,000 60,000 MOH
1974 Evaluation		107,000
1975 Evaluation		Data system revised to show clients, not visits
Overall Project Evaluation 1975		(38,000)

Note: Actual figures are given in parentheses.

{a} MOH = Ministry of Health

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The contribution of the Honduran Government, however, is mentioned in several project documents. In the 1970 revised project document, it is noted that Honduras had made large previous allocations to this project. In November 1971, \$75,000 had been budgeted for 1972 for this program, the same amount as the previous Government had budgeted. In March 1974, A.I.D. documents state that the Honduran Government's assumption of project costs had been slow, but adds that substantial increases were expected shortly. June 1975 documents note that Honduran funds had been allotted for the following year. The project evaluation reports that A.I.D. was funding only limited personnel and contraceptives by mid-1975.

There were other donors during the project period, but no clear record of their financing has been found.

2.2 Evaluation of Results

Although A.I.D. project evaluators concluded that this project may have been successful because estimated annual growth rates were reported to have declined from 3.4 percent to 2.8 percent (USAID/Honduras 1975d), other project documents

repeatedly acknowledged that reliable data were not available. Other sources also suggest that there is no reason to conclude that the project had a significant impact on population growth (Hill 1980). Indeed, very little change in crude birth rate and total fertility rate appeared during the project years.

Considering the project's objectives in terms of family planning users, the project appears to have been unsuccessful: only 38,000 users were active in the program by the end of the project. However, this conclusion is confounded by confusion concerning the basis of computation. A.I.D. documents in 1975 mention a change from counting family planning visits to counting acceptors. If the projections for 1975 of 107,000-130,000 acceptors were based on data that were thought to be number of acceptors, but were actually number of clinic visits, then program growth may have been as planned. If each of the 38,000 acceptors visited the clinics about three times per year, not an unusual occurrence, this would have totaled about 115,000 visits.

In any case, the participation of only 38,000 users after almost a decade of major funding can be evaluated as only a modest achievement.

2.3 Sustainability Factors

2.3.1 National Commitment to Project Goals and Project Negotiation

Although this project had the consent of the Honduran Government and the Ministry of Health, project documents, even as early as 1969, clearly indicate less than full commitment to this project. Several informants who profess to support family planning indicated that the vertical nature of this project, and the inequities between the project and other less well-funded service-delivery programs, caused resentment and substantially reduced commitment within the Ministry. It was perceived as an A.I.D. project without the full involvement of Hondurans. Indeed, the 1969 project document states that Honduran officials were "somewhat reluctantly" associated with the project (USAID/Honduras 1969b). Although a 1970 project revision discusses the "relaxation of the Government's prior resistance," this is likely to have been only a relative change. President Cruz campaigned against the project in 1971 but allowed it to continue after his election. However, after the Lopez Arellano coup of 1972, the Ministry moved to integrate the vertical program within its system and by 1975 had achieved this integration, while substantially reducing its family planning activities. Resources were then shifted to other maternal and child health priorities.

In hindsight, it appears that the problems suffered by this program may not have been entirely the result of a lack of Honduran commitment to the family planning program goals, but rather that the "higher goal" of extension of coverage and integration of health services had greater salience at this time. One can only speculate on whether family planning activities might have continued, in a much modified organizational service structure, had A.I.D. moved more quickly with significant financing to support the very powerful movement to extend health service coverage. A.I.D., however, resisted Ministry efforts to deemphasize the vertical program and to provide resources for other activities.

2.3.2 Institutional Organization of Project

This project started as an extremely vertical effort, and because it was relatively well funded, it created considerable resentment in other service-delivery entities of the Ministry. Indeed, some Honduran observers subsequent to this period believe that the real resistance to family planning came from mid-level Ministry officials who were abused or ignored during the difficulties with this program during the early and mid-1970s.

The reason given for the completely vertical organization of the program was to enable a high degree of control over personnel and budget, presumably to ensure that A.I.D. resources were used only for their intended purposes, thereby improving chances for success. It should be noted that the vertical nature of the program in Honduras was not unlike A.I.D.'s own internal structure for population assistance at that time. The dismantling of the program in 1975 and in subsequent projects seems to have nullified any benefit of such a concentrated start. In retrospect, it appears that a less categorical approach might have had better long-term results.

It should be recognized that although personnel were "integrated" into the Ministry, they no longer pursued family planning goals and objectives. There was no major integrated family planning program in the Ministry until the 1980s.

2.3.3 Financing

A.I.D. initially funded almost all direct costs for this program, including personnel. Although the Ministry picked up an increasing portion of personnel costs at the end of the project, only a little more than 50 percent of project staff were retained when the Ministry took over the program, thus greatly reducing the pool of personnel available to carry on the program activities. For example, the educators were dismissed because the Ministry determined that it could not afford the recurrent cost of salaries (about \$90,000 per year) (USAID/Honduras 1975d).

2.3.4 Technical Assistance

A great deal of short-term technical assistance was provided through centrally funded A.I.D. programs during the course of this project. However, only one full-time adviser to the Ministry was mentioned in project documents for the early years of the project. It is not clear how long this technical assistance was provided. Given the Ministry's lack of involvement in setting project objectives, it seems unlikely that the Ministry was very active in setting the agenda for such technical assistance, thus reducing its likely impact.

2.3.5 Community Participation

There is little evidence of community participation in this project, except as family planning clients.

2.3.6 Training and Personnel

Although the Ministry's Family Planning Unit employed people trained under the project, only about 50 percent of them were retained after integration of the program into the Ministry, thereby significantly reducing the provision of family planning

services by trained personnel. A few of those who left the Ministry at this time continued working in the family planning activities within ASHONPLAFA, a private agency.

2.3.7 Donor Coordination

The International Planned Parenthood Federation and the Population Council, both heavily dependent on A.I.D. support, provided contraceptives for this project, apparently in adequate quantity and variety. There is no evidence of other bilateral or multilateral sources of funds. It does not appear, however, that the Ministry took a very active role in seeking other funding sources.

3. INTEGRATED RURAL HEALTH/FAMILY PLANNING PROJECT

The second major family planning project in the 1970s, Integrated Rural Health/Family Planning, demonstrated the longterm negative effect of the earlier project. This second project was designed by A.I.D. officials to tap both family planning and health funds and was rushed through the A.I.D. approval process and through the Ministry under end-of-fiscal-year pressures in 1976. A.I.D. was forced to backtrack when the Ministry, still resentful of the earlier project, refused to implement the family planning aspects of the project. Indeed, a project evaluation report in 1978 (USAID/Honduras 1978b) indicated that the family planning component of the 10-month auxiliary nurse training course totaled only 4 hours of a total of 1,600 course hours. The project really emphasized only the general training of auxiliary nurses and is best treated as a major component of A.I.D. support for the Rural Penetration Program (see Appendix F.)

4. HEALTH SECTOR I

The family planning component of the current Health Sector I project has only recently (in 1984) gained significant support at the highest levels of the Ministry after almost a decade of resistance. Now, however, family planning appears to be a priority of the Ministry, and various training and outreach activities have begun. Following a November 1983 announcement of the Ministry's Family Planning Program, norms for family planning activities were announced in 1984. Fairly extensive family planning training of nurse auxiliaries at the health post and health center levels has been accomplished, and contraceptives appear to be periodically available -- although the Ministry has only recently begun to remove large quantities of out-of-date pills acquired during the earlier projects. In addition, family planning components have been added to the Mass Media and Health Practices project and the Maternal/Weaning Practices project (see Appendix G).

Although it is important to note the shift in Ministry commitment to the objectives of family planning, it is too soon to evaluate the current impact of this subcomponent of Health Sector I or to forecast its sustainability -- although it seems likely that some foreign funding will be essential to the continuation of this activity.

5. ASHONPLAFA

The activities of the private family planning association, ASHONPLAFA, which now receives significant direct A.I.D. funding

and previously received almost all of its funding from the International Planned Parenthood Federation, appear to be growing in effectiveness. Beginning as a largely urban-based program in Tegucigalpa and San Pedro Sula, ASHONPLAFA has branched out in the last few years into rural areas. A recent survey found that over 75 percent of Honduran women had knowledge of contraceptive devices, and 35 percent of women in conjugal union were using some contraceptive method (Ministry of Health 1984). This last figure marks a significant rise in only 3 years (in 1981 the figure was 27 percent). Of the women using oral contraceptives, 52 percent received their pills from ASHONPLAFA. Again, however, ASHONPLAFA is almost entirely dependent on external funding and appears unlikely to be sustained without continuous foreign support.

APPENDIX E

NUTRITION PROJECTS{1}

1. INTRODUCTION

Widespread malnutrition has been and remains a serious problem in Honduras, particularly among children under 5 years old and pregnant and lactating women. Studies as early as the 1950s estimated the malnutrition rate for children under 5 years old at 70 percent or more, and these high rates have continued and may even have increased since then. Although studies show that the infant mortality rate decreased from 86.6 to 78.6 per 1,000 lives births from 1977 to 1983, the percentage of malnourished children remained at 72.5 percent (Government of Honduras 1986). Continued poverty is clearly a major factor in the lack of progress.

In 1965-1966, the Nutrition Institute of Central America and Panama (INCAP) carried out the first comprehensive, national assessment of nutrition in Honduras (INCAP 1969). Over 70 percent of children under 5 years old were found to be malnourished, 2.4 percent severely, 28.7 percent moderately, and 45.4 percent mildly. Although studies found anemia, vitamin A deficiencies, and shortages of riboflavin, iodine, and other trace minerals to exist on a wide scale, protein-calorie malnutrition is by far the country's most critical nutritional problem (USAID/Honduras 1976b).

Reducing malnutrition is a major and complex challenge for any developing country. Optimally, policies aim not only to increase national income but also to address land tenure, agricultural credit, agricultural technical assistance, roads, internal markets, food prices, income distribution, food habits and beliefs, food production for export versus consumption, and last but not least, health status, which acts synergistically to improve or worsen nutritional status. Achieving coordinated national policies and programs was indeed the goal of a major A.I.D. project in Honduras from 1976 to 1981, the Nutrition Planning project, but the project's effectiveness was limited by the lack of strong top-level political commitment that is necessary for successful intersectoral coordination. Moreover, the commitment and ability of the technical personnel in the different participating ministries were neither sufficiently strong nor adequate for this type of multisectoral intervention.

The U.S. Government has also worked to improve nutrition in Honduras through food distribution programs that have continued since the 1950s. These programs have been administered by the Cooperative for American Relief Everywhere, Inc. (CARE) and Catholic Relief Services/Caritas. A large number of other private and voluntary organizations and bilateral programs have established food distribution programs in recent years, and the Honduran Government is making progress in coordinating these efforts.

{1}Sources for this appendix include interviews with Gomez Padilla, Roberta Palma, Julia Elvir, Marty Schwartz, and Juan Castillo (see Appendix I).

2. HISTORY OF NUTRITIONAL IMPROVEMENT EFFORTS IN HONDURAS

During the early 1950s, the Government of Honduras made the first attempts to identify and try to resolve national nutrition problems (Stanfield et al. 1979). During that period, public awareness of the nutritional problem was heightened by a series of studies done in conjunction with INCAP, which led to the creation of the Nutrition Unit within the Ministry of Government, Development, and Health. The principal concerns of that unit were the delivery of nutrients to school-age children and nutrition education programs. A CARE school feeding program was initiated during this period to help support this effort.

In the mid-1950s, the Nutrition Unit was transferred to the Secretariat of Public Health and Social Assistance, where it became the Department of Nutrition. The school feeding programs were continued, and special feeding programs were created in hospitals and clinics for children identified by health center staff as having nutritional deficiencies. This detection and treatment of malnourished children by health centers became the predominant approach to nutrition problems in the 1960s.

At least as early as 1959, the Government of Honduras and external donors considered efforts to institute a coordinated national nutritional policy. In that year, the Food and Agriculture Organization, the Pan American Health Organization, and the United Nations Children's Fund (UNICEF) worked with the Government of Honduras to develop an integrated plan for nutritional education and development (Government of Honduras 1959). The plan called for nutritional education through health centers, schools, 4-H clubs, and other activities; increased production of nutritious foods such as vegetables, fruits, eggs, poultry, rabbits, fish, and so on, through agricultural extension and basic education activities; and nutritional recuperation through food supplements for high-risk mothers and children and iron supplements for all pregnant women. To achieve these objectives, the program was to sponsor various training activities and encourage effective coordination among the Ministries of Health, Education, and Natural Resources and local and international organizations. {2}

Although the program reportedly started well, particularly through the schools in the Choluteca area, it ultimately achieved only limited success because the three collaborating ministries lacked sufficient funding and were unwilling to use their own limited resources for the benefit of the joint project. This theme of insufficient funding and problems with interministerial

coordination was repeated throughout the history of nutrition programs in Honduras.

Clearly, nutrition was not a major priority in these years. Within the Ministry of Health in the mid-1960s, the Department of Nutrition had a director, three nutrition educators (trained for several months at INCAP), and two nutrition educators in Choluteca. The total budget was approximately \$15,500, of which \$15,000 went to salaries.

INCAP and the Government of Honduras took several positive steps beginning with the 1966 INCAP survey, seminars on national food and nutrition policies in 1968 and 1974, the creation of a National Food and Nutrition Council in 1968, the elaboration of food and nutrition policies in the Ministries of Health and Natural Resources in 1971, and the outline of a national food and nutrition policy in the National Development Plan for 1974-1978. With technical assistance from INCAP, a national nutritional assessment was carried out in August-November 1975 (Stanfield et al. 1979).

Partially in response to these initiatives, A.I.D. provided a major grant/loan package (the Nutrition Planning project) from 1976 to 1981 aimed at increasing Honduras's capability to carry out analysis, planning, and evaluation activities regarding nutrition programs and for developing the institutional elements and rural infrastructure essential to dealing with national nutrition problems (USAID/Honduras 1976b). At the same time, the A.I.D. Regional Office for Central America and Panama (ROCAP) and INCAP signed an agreement to provide technical assistance to the program. Table E-1 shows the major components of the A.I.D. loan/grant package, along with Honduran Government planned contributions.

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 Table E-1. A.I.D. Grant/Loan Support to Nutrition Activities,
 1971-1986: Nutrition Planning Project Components and A.I.D.
 and Government of Honduras Contributions
 (thousands of dollars)

Project Component	A.I.D. Grant	A.I.D. Loan	Honduran Government Contribution
Analysis and Planning	466	-	730
Nutrition Education	164	200	10
Environmental Sani- tation	20	1,650	500
Pilot Projects	-	1,650	400
Total	650	3,500	1,640

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The major project components included the following

activities:

Analysis, Planning, and Evaluation

- Establishing a national nutrition surveillance system
- Designing systems and procedures for evaluating nutrition-related programs
- Conducting a series of studies aimed at analyzing the extent, nature, and causes of nutrition problems in order to improve the design and coverage of nutrition-related programs

Nutrition Education (long- and short-term training of personnel in Honduran agencies and institutions involved in nutrition-related activities)

- Providing 6 years of participant training in nutrition planning and related fields for Government personnel engaged in national nutrition planning
- Providing 360 months of training (6 months for 60 people) for technicians who work in nutrition programs
- Providing 1-month in-service training courses for 320 extension agents and promoters who will conduct outreach activities
- Designing primary school curriculum supplements and nonformal education packages on nutrition.
- Designing and producing a series of 30-second radio spot messages on nutrition, and broadcasting them on a nationwide hookup of 16 radio stations
- Purchasing essential audiovisual equipment and training staff in their use in producing audiovisual materials on nutrition

Water Supply and Environmental Sanitation (assist in the provision of potable water and sanitary waste disposal for over 500,000 people)

- Constructing 3,000 low-cost wells or gravity-fed systems per year in rural areas
- Constructing 10,000 latrines per year in the same communities
- Providing nutrition education in these communities
- Evaluating the impact of these facilities on the nutritional status of participating families

Pilot Projects

- Conducting a series of small, community-level projects for increasing the availability of food products for consumption by the families involved
- Improving and expanding fish farming as a source of food
- Researching methods for introducing soybeans into the

diets of rural families

- Applying research concerning the use of new varieties of sorghum

This program was coordinated by the Technical Secretariat of the National Planning Council (CONSUPLANE) and the Ministry of Health. In late 1976, the System of Analysis of Food and Nutrition Planning (SAPLAN) was created within CONSUPLANE to administer the program. A.I.D. funding provided full-time staff members for a program and project staff representing the Ministries of Health, Education, and Natural Resources (agriculture); the National Social Welfare Board; and the National Agrarian Reform Institute. The respective organizations submitted projects to SAPLAN for funding under the A.I.D. guidelines.

The results of SAPLAN's activities were mixed. SAPLAN coordinated a major national study of food and nutrition from 1978 to 1980, which is still a source of useful information. A nutritional surveillance system established in the Danli area worked well, but no funds were available for national expansion, and there was little organized follow-up of the nutritional problems identified (Mosquera and Grueso 1979; Ruschand Vitale 1978; A.I.D. Auditor General 1981).

The Ministry of Education conducted many courses, developed educational materials and nutrition texts for schools, and presented thousands of spot radio messages. Although most of these activities ended with the termination of A.I.D. funding in 1981, some of the donated equipment is still in use. These nutrition education activities were not, however, coordinated with the health education programs of the Ministry of Education, nor were they carried out by health workers -- an indication of the lack of coordination among ministries.

The Ministry of Natural Resources conducted three pilot projects: promotion of soybean cultivation and consumption, a sorghum project in southern Honduras, and an aquaculture project in Comayagua.

The Ministry of Health's wells and latrines projects were quite extensive and apparently successful. The available A.I.D. resources were used well in the Rural Penetration Program, which had generated national and community enthusiasm in the mid-1970s. The material support through SAPLAN was vital to the work and credibility of health promoters.

The income-generation projects of the National Social Welfare Board (bookkeeping, pig and chicken farming, sewing, irrigation) had little success, but the cattle-raising activities of the National Agrarian Institute still continue.

Several aspects of the A.I.D. project and the functioning of SAPLAN have been criticized. SAPLAN was a planning and policymaking organization, but it could not execute projects. SAPLAN lacked management capabilities, and yet A.I.D. and INCAP did not provide managerial technical assistance. The representatives to SAPLAN from the participating organizations lacked the prestige and high-level influence necessary to make their participation in SAPLAN effective. In addition, these institutional representatives came with their own agenda of projects that they wanted funded, not with an attitude of working selflessly to develop the best programs to reduce malnutrition,

regardless of which group most appropriately implemented them. These projects of the participating ministries generally functioned independently, with no coordination among them. Although the project trained many Hondurans, there is no clear agreement on how many of these people still work in public health nutrition.

Although early project evaluations had been quite positive, a 1981 evaluation by A.I.D.'s Office of the Auditor General found project achievements to be few. The evaluators reported that SAPLAN's lack of implementation experience, along with the project's complex design, led to poor overall management and little coordination with other involved agencies. The limited success of many activities stemmed from such problems as unrealistic time frames and inadequate selection and utilization of equipment. The fish demonstration/research center was reported to be poorly functioning. The nutrition surveillance system in Danli, community miniprojects, and the soy production project were reported to be functioning well. According to USAID/ Honduras information, only a little more than half of appropriated A.I.D. funds were ever disbursed.

With the end of A.I.D. funding in 1981, SAPLAN's budget was cut by two-thirds. SAPLAN was dissolved in 1983 and replaced by a small coordinating unit within CONSUPLANE. This unit continues its coordinating function with some success (it administers an interagency committee on food distribution programs and oversees in-service training for personnel of these programs), but it has no representatives from other agencies.

Today, INCAP and A.I.D./ROCAP are once again working on many of the same types of activities as those that were begun during the SAPLAN period (INCAP 1985). The Ministry of Health plans a second national nutritional surveillance survey, and the Ministry of Education plans to conduct a survey on the height of first graders. Both of these projects are funded by A.I.D., with supplemental funding from INCAP. INCAP, A.I.D., and the Government of France are collaborating in supporting nutrition training for Ministry of Health personnel. A large number of governmental and international groups have food donation programs (these are discussed in Section 4). A.I.D. and the Government of Canada are supporting Honduran Government efforts to survey dental health, to evaluate the national salt-iodization program, and to fortify sugar with vitamin A. The Government of Switzerland is supporting nutrition training at the university level and in-service training in health organizations. ROCAP has a large regional child survival project that works through the Divisions of Maternal and Child Health and Epidemiology. And the Government of Italy supports training and technical assistance in research on basic grains.

Although this array of projects is impressive, the fact remains that nutrition planning and programs are still supported mainly by external donors. Government support remains modest, and the Nutrition Division modestly staffed. Nutrition is not emphasized in the medical school, so physicians do not appreciate its importance to health.

Although SAPLAN helped strengthen the nutrition units in most of the participating organizations, most remain relatively weak and underfunded. The National Social Welfare Board operates child development centers and has one nutritionist on its staff. The Ministry of Labor has a day care department. The Ministry of National Resources has a rural youth program, administers some

food-for-work projects, and has recently established a food unit. The Ministry of Education has a school garden program and administers a fortified milk program for students but has no professional nutritionist on its staff. The Ministry of Health's nutrition program has approximately 15 nutritionists and operates seven nutritional recuperation centers and three intensive care units for severely malnourished children. But the program in general is described as weak and disorganized, with few norms, unclear policies, and no regular budget. An active national breast-feeding promotion program (PROALMA) established in 1983 works quite independently of the Ministry of Health. (This program is discussed in Appendix G on Health Sector I.)

{2}One source describes this nutrition policy as "only a catalog of good intentions, which were not sufficiently discussed with the executing agencies and which did not receive budgetary support."

3. SUSTAINABILITY

Except for food distribution, A.I.D.'s support to nutrition planning and programs in Honduras began only 10 years ago. As discussed in the preceding section, the achievements of SAPLAN were limited, and some of the benefits achieved were lost rather quickly with the cessation of A.I.D. funding in 1981. It is interesting to note, however, that other Central American countries, most notably Costa Rica, studied and built on SAPLAN's experience in Danli to create their own systems for nutritional surveillance.

3.1 National Commitment to Project Goals

SAPLAN was basically an A.I.D./INCAP creation and did not grow naturally from Honduras's readiness for real intersectoral nutrition programming. Although in the years prior to the A.I.D. project, the Government of Honduras demonstrated some recognition of the problem of malnutrition and a determination to address it, at no time then or now has the Government invested a significant amount of its own funds in nutrition-improvement projects. It is noteworthy that a major portion of A.I.D. funds available under the nutrition program were channeled to the health program to which the Government was most committed -- the Rural Penetration Program -- in support of the small water and sanitation projects.

3.2 Project Negotiation and Donor Coordination

A.I.D. and INCAP encouraged governments throughout the region to establish intersectoral nutrition planning systems. Thus, although Honduran officials had been thinking along similar lines, the major impetus, and the enabling funding, came from abroad. Although A.I.D. and INCAP appear to have worked well together on this project, there is one report of some disagreements between USAID/Honduras and the A.I.D. regional office, ROCAP (Rusch and Vitale 1978).

3.3 Institutional Organization

Although SAPLAN was intended to integrate the nutrition-related efforts of several Government agencies, it never had the ability to manage programs. It ended up serving as a mechanism through which collaborating agencies funded their projects. Thus SAPLAN had the advantages of neither a vertical nor an integrated organization. The SAPLAN experience yields no obvious lessons regarding the advantages of integrated or vertical programs for sustainability.

3.4 Financing

The project had few prospects of financial sustainability without continued external funding. The A.I.D. loan/grant package of over \$4 million was over twice the Honduran contribution, much of which the Government would have spent in any case through the respective agencies. SAPLAN was terminated shortly after A.I.D. support ended.

3.5 Technical Assistance

Technical assistance (one INCAP long-term adviser and many short-term advisers from INCAP, A.I.D., and UNICEF) was provided at modest levels that have been sustained by the same external organizations. A number of key Honduran counterparts trained under the project continue to work in positions related to nutrition planning in Honduras. Evaluators have noted the need for technical assistance in management, which was not supplied.

3.6 Training

As noted, a great number of Hondurans received training under the A.I.D. program, and at least some of them continue to work in nutrition-related positions.

3.7 Community Participation

Community participation was unimportant in SAPLAN's work, but it was quite important in some of the field projects funded through that agency, particularly the small water and sanitation projects of the Ministry of Health and the community miniprojects of the National Social Welfare Board. The role of community participation in strengthening project sustainability, however, appears to have been minimal.

3.8 Project Effectiveness

Opinions among Hondurans associated with the project differ significantly. One source says that SAPLAN became politicized and ineffective and that most of the people trained went on to different jobs. Another source credits SAPLAN with raising the national consciousness about malnutrition, strengthening the appreciation of nutrition as a multisectoral problem demanding multisectoral solutions, and training many people who are still working to improve nutrition in Honduras. Another source reports that some of the community miniprojects continued with funding from the Government of Germany. We have already noted the mixed

effectiveness of the projects of the individual organizations that constituted SAPLAN.

4. U.S. FOOD DISTRIBUTION PROGRAMS

4.1 Description of Food Distribution Programs

Since the 1950s, the U.S. Government has supported food distribution programs in Honduras under public law (PL) 480. Under the provisions of this legislation, the United States has sold, on concessional loan terms, substantial amounts of wheat to the Government of Honduras, which it in turn sells to the private sector. If the proceeds are used to fund food and agriculture-related development projects (e.g., to encourage local production of food crops, better storage and marketing of grains), Honduras does not have to repay the U.S. loans that financed the original purchases. Other major food distribution programs are administered by CARE and Catholic Relief Services through Caritas, its Honduran affiliate. The U.S. Government donates and transports this PL 480 food to a port of entry. CARE and Caritas together reach approximately 425,000 beneficiaries, including 120,000 preschool children and pregnant or lactating women.

CARE began its food distribution programs in Honduras in 1959 (Government of Honduras 1986). It administers the storage and transportation of food through maternal and child health programs and school lunch programs, which reach 300,000 students in 4,000 schools. The maternal and child health program serves children under 5 years old and pregnant and lactating women. This program is administered through the following mechanisms:

- Ministry of Health facilities (hospitals, health centers, nutrition recuperation centers), which distribute food monthly to pregnant and lactating mothers and malnourished children
- National Social Welfare Board facilities, which prepare food daily; the community nutrition centers supplement PL 480 food with food purchased locally
- Community programs of international and Honduran private voluntary organizations

CARE's programs account for the great majority of U.S.-sponsored food distribution. The participating Honduran Government agencies pay CARE's administrative expenses, such as transportation and warehousing, which have risen sharply in recent years. The Honduran Government's current contribution is approximately \$1 million per year, funded through the U.S. Economic Support Fund.

Caritas distributes food through its housewives clubs and through a food-for-work program that gives food in return for labor on community development projects (Pines and King 1985). The housewives clubs carry out such projects as well-digging, vegetable gardening, and income-generating activities. Food-for-work projects are organized by volunteer Caritas promoters and parish priests, sometimes in collaboration with Ministry of Health and SANAA projects. Since 1967, the Government of Honduras has contributed \$50,000 per year toward

Caritas's administrative expenses. At least in part because of the organization's reluctance to work closely with the Honduran Government, Caritas is unlikely to request an increase in this subsidy, although it is quite inadequate.

There are many other private and governmental food distribution programs in Honduras. CONSUPLANE has established a committee representing the major programs, which meets every 2 months. ROCAP/INCAP are also supporting in-service training for staff of all of these programs.

CONSUPLANE, the Ministry of Health, the National Social Welfare Board, the Ministry of Natural Resources, and the Institute of Professional Training have prepared a national policy on food distribution programs that has been presented to the President for approval.

Evaluations of these food distribution programs emphasize management and administrative problems. Because of the difficulty of obtaining useful nutritional data, the nutritional impact of the donated food has never been adequately measured. It seems clear, however, that the community development projects that are facilitated by the food distribution program have positive benefits for health and nutrition and contribute in at least a small way to long-term solutions to nutritional problems. The National Social Welfare Board in particular is interested in using food aid as a developmental tool, and CARE staff share this desire.

4.2 Sustainability

There is little hope that the need for food aid in Honduras will disappear soon. Malnutrition continues to afflict some 70 percent of children under 5 years old. A major portion of the rural population cannot consistently grow or purchase sufficient food for their families. It seems likely that if the U.S. Government were to suspend its food aid, other foreign donors would step in.

While the food distribution programs will probably depend on external donors for some time, there is now some interest in A.I.D. in investigating the possibility that the Government of Honduras could purchase more of the food on the local market and/or take over more of the transportation and warehousing duties. Indeed, CARE is involved in the slow process of turning over more of such responsibilities to the Ministry of Education. A major program evaluation scheduled for 1987 should be critical for an assessment of such possibilities for the "Honduranization" of the programs.

The sustainability of the food programs would be enhanced if the food provided were used more as a development tool, to stimulate basic health and nutrition education, local food-production projects, and local income-generation projects. Through such means, food aid can contribute to local food self-sufficiency and to a decreasing need for widespread food distribution in Honduras.

APPENDIX F

RURAL PENETRATION PROGRAM{1}

The Rural Penetration Program is an unusual case study in this evaluation. Rather than a study of an A.I.D. project, it is a study of a broad-based program of the Ministry of Health, a program that included three A.I.D. projects as well as projects of other international donors. We chose to treat this Government program as a case for a variety of reasons. The Rural Penetration Program was a watershed program in the Honduran health sector, a program that dominated health activities in its period and that has remained a major influence in the sector. It is thus extremely important to understand the program as a whole in order to understand the role of A.I.D. projects in that period. By viewing the program as a context within which A.I.D. health assistance projects functioned, we gain an appreciation of the systemic influences on A.I.D. projects, a perspective that is less clear when we focus attention only on A.I.D. projects. And because other donors often played a more important role than did A.I.D., we gain an additional perspective on the projects and the participation of other donors. We therefore present the Rural Penetration Program as a case and highlight the role of A.I.D. projects within it. However, we also evaluate each A.I.D. project for its sustainability according to our established methodology.

In 1972, following the coup of General Oswaldo Lopez Arellano, a new team of health officials was appointed to direct the reform efforts in the health sector to complement a general reform movement in other sectors. This team initiated a variety of programs, the most significant of which was a massive extension of primary care coverage into the rural areas, called the Rural Penetration Program. This program was unusual in several ways. First, the initiative for the program was largely national in origin, and A.I.D.'s contribution was subordinated to the national agenda and goals. In addition, other donors, in particular the Pan American Health Organization (PAHO), UNICEF, and the Inter-American Development Bank (IDB), played a more active role in the design, implementation, and funding of the program than did A.I.D. Second, there was an unusual national commitment to the project and unusual stability among key Ministry of Health staff. The program, as implemented in the period 1973-1978 when the original Ministry of Health team was in office, encompassed three major A.I.D. projects: (1) the final stage of the Maternal and Child Health/Family Planning project (1965-1976); (2) the Nutrition Planning project (1976-1981); and (3) the Integrated Rural Health/Family Planning project (1976-1981). Much of the original program has survived to the current period, although it has suffered reversals and declines before being regenerated with an influx of renewed foreign funding (discussed in the case study of Health Sector I, 1980-1987 in Appendix G).

{1}Sources for this appendix include interviews with Enrique Aguilar Paz, Rigoberto Alvarado, Alberto Guzman, Carlos Godoy, Gustavo Corrales, Anibal Pinto, Benjamin Rivera, Arnalda Estrada, Jorge Haddad, Hilton Troches, and Anita Siegel (see Appendix I), in addition to earlier research by Bossert.

1. PRIOR CONDITIONS

In the period before the Rural Penetration Program, the Ministry of Health received a relatively low portion of the national budget; this proportion increased from 7.3 percent in

1972 to a high of 10.4 percent by 1976. Much of this funding was committed to the hospital sector, which consumed around 63 percent of the health budget (see Appendix H). Nevertheless, the Ministry was engaged in some activities in rural areas, including the mobile health units program that was initiated by A.I.D. in 1963. The Ministry also had begun the large-scale Maternal and Child Health/Family Planning project (described in Appendix D). In addition, with PAHO guidance, the Ministry began major efforts in national planning with its Four-Year Plans. Malaria programs were beginning to suffer the effects of the withdrawal of international funding (see Appendix B). The National Water and Sanitation Service (SANAA) continued implementing water and sanitation programs, although funding for these programs shifted in 1970 from A.I.D. to CARE and later to IDB (see Appendix C).

2. RURAL PENETRATION PROGRAM

The Rural Penetration Program was established within the context of the reformist government of Lopez Arellano (1972-1975), which emphasized moderate reforms targeted largely to the rural population, with considerable emphasis on community participation and cooperative activities. Lopez appointed a well-respected physician, Dr. Aguilar Paz, a former dean of the medical school, as Minister of Health and allowed him to appoint his own team of officials to the highest positions in the Ministry. This team, which included many members of the medical school's division of preventive medicine, was dedicated to professionalizing the Ministry by promoting specialists in public health and deemphasizing political appointments. They had also been able to gain control of the Colegio de Medicos, the Honduran medical association, thereby temporarily defusing any resistance to their program from more conservative physicians.

With the initial objective of establishing a single health system to unite all Government and semiautonomous health providers (including the Social Security Institute) under the Ministry, the team set out to plan the entire sector. It failed to gain support from the relatively powerful Technical Secretariat of the National Planning Council (CONSUPLANE) for such an ambitious goal (CONSUPLANE 1973). The planning option that was adopted involved an ambitious expansion of both the hospital sector and basic primary care services in rural areas. In the hospital sector, the plan envisioned the construction of the Hospital Escuela, as well as two regional and eight area hospitals (CHE), whose construction and equipment were to be funded through two major loans from IDB (totaling \$17.8 million). These hospitals were to be part of a complex regionalization plan in which the hospital sector would receive referrals from lower service levels and the basic primary care would be provided by a network of health centers (CESAMO) staffed by physicians and rural health posts (CESAR) staffed by auxiliary nurses and assisted by three types of community-level volunteers: trained midwives; guardianas, trained in primary health care; and representantes, trained in community leadership (Ministry of Health 1976b).

The community-level personnel would be organized and trained by a paid health worker, the promoter, who would also be responsible for sanitation and water programs. A major component of the program was the involvement of the community in selecting health workers and setting some priorities for health activities. For this aspect of the program, the promoter was to assist the community in organizing a health committee and involve the community in its activities.

In addition, administrative reforms were initiated. One of the first decisions of the new team was to unite the two separate directorates (one for hospitals and one for public health) under one Director General for Health Services. At the same time, the Ministry was decentralized, giving greater budgetary, personnel, and programming authority to regional officials. A new administrative reform unit, UNIDESA, was created to develop and implement new systems of cost control and maintenance.

This program was developed with active participation of PAHO technical assistance advisers. Indeed, PAHO used Honduras as a model for promoting its extension-of-coverage program. Both PAHO officials and Hondurans describe the process of their cooperation as one of mutual learning and priority setting. PAHO planners were particularly active participants in the process, and they used this experience to help develop an alternative to PAHO's overly elaborate planning methodology. PAHO also provided some funding for training and scholarships related to the development of this program. UNICEF provided assistance to train the village-level volunteers. IDB funded construction of hospitals, health centers, and health posts, as well as training for hospital administration and the purchase of some equipment.

A.I.D.'s contribution to the Rural Penetration Program was initially influenced by its established commitment to the Maternal and Child Health/Family Planning project (see Appendix D). This program had generated some backlash against family planning objectives in the university and the church, as well as among some members of the Aguilar Paz team. Perhaps more important, widespread institutional jealousy had been generated within the Ministry by this vertical program, which had considerably greater resources than other Ministry programs and relative autonomy from the rest of the Ministry. By 1975, the Ministry was able to "integrate" the family planning program into the Division of Maternal and Child Health and, in so doing, radically reduce family planning activities.

Although A.I.D. apparently attempted to develop a major new loan for the health sector (\$15 million), its initial overtures were ineptly handled and the proposal was rebuffed. The USAID Mission proposed that Honduras adopt a plan based on the model of El Salvador. Coming only 3 years after the "soccer war" between these two countries, this proposal was an affront to Honduran nationalism. It appears that in the first few years of the Rural Penetration Program, A.I.D. funds were nevertheless made available for training auxiliary nurses in Tegucigalpa and San Pedro Sula and other paraprofessionals in the "Las Crucitas" center in Tegucigalpa. In addition, A.I.D. funded the printing plant for the Ministry's publication needs.

These funds for training of auxiliaries were expanded in 1976 with the Integrated Rural Health/Family Planning project. This project provided funds for the construction of two new training centers for auxiliary nurses in San Pedro Sula and Choluteca and the remodeling of the training center in Tegucigalpa. The project expected to train 1,120 auxiliary nurses by 1980 (USAID/Honduras 1976s). It also funded the per diem expenses and scholarships for the training of over 4,000 empirical midwives and guardianas from 1976-1981. While the family planning aspect of this project was relegated to an extremely minor part of the curriculum, the design of the auxiliary nurse training program and the training provided generally received positive evaluations (Massey 1976; USAID/Honduras 1979a). Indeed, the training of these auxiliary nurses

was one of the more sustained programs A.I.D. has supported.

The other major A.I.D. program during this period was the Nutrition Planning project that was administered through SAPLAN, the nutrition planning unit of CONSUPLANE. Although the effort to initiate a strong multisectoral nutrition planning program ended in the 1980s with few significant achievements (see Appendix E), portions of this project were relatively successful. In particular, this loan provided a major source of funding, along with other foreign donors, for the rural water and sanitation program of the Division of Environmental Sanitation. This funding provided materials (pumps, concrete) for the activities of the promoters. The program has the reputation of being one of the more successful programs of the period. It generated a significant level of community participation and by 1981 had provided resources for the placement of 21,174 latrines and 2,388 potable water supply systems in rural communities of fewer than 200 people (A.I.D. Auditor General 1981).

By 1978, the Rural Penetration Program had achieved a significant expansion of coverage. The number of health posts increased from 148 in 1973 to 309 by 1978; auxiliary nurses rose from 1,647 in 1973 to 2,275 in 1978, with 275 receiving special training for primary care in rural areas; more than 300 promoters were trained to help establish water and sanitation programs in small communities; and more than 1,185 guardianas, 823 representantes, and 1,958 empirical midwives received training from the program (Ministry of Health 1978b). Community participation during much of this period was reported to be extremely high. And there is some indication that these activities influenced the decline in infant mortality that was experienced during this period. The estimates based on three surveys suggest that the general rate of decline in infant mortality during this period accelerated and that most of the acceleration was due to a faster decline in rural areas where the program was implemented (Management Sciences for Health 1986b).

There were, however, some areas in which the program did not reach its goals. Despite widespread immunization campaigns, coverage never reached sufficient levels to prevent epidemics of measles and polio from occurring in 1978. Logistic and supply problems developed toward the end of the period and would continue to plague the system and undermine the effectiveness of health post and community-level workers. Finally, the IDB funded hospital construction that was planned during this period would have the potential of becoming a tremendous burden on future Ministry of Health budgets (Hartman 1980; USAID/Honduras 1980a), undermining the capacity of the Ministry to fund the primary care system.

3. POSTPROGRAM CONDITIONS

After 1978, the Rural Penetration Program changed character. The original team of public health officials under Minister Aguilar Paz was removed from office with the coup of Policarpo Paz. Unlike Melgar Castro, who after his 1975 coup had maintained a commitment to the Ministry's programs and personnel (while changing all other ministries), Policarpo Paz brought in new officials who opposed the dominance of public health specialists and sought slightly different priorities. The new Minister and Vice-Minister had been hospital administrators in San Pedro Sula and were closely related to the air force. This new team became involved in the full construction stage of the

hospital facilities planned under the Aguilar Paz period. They were also faced with outbreaks of dengue, measles, and polio that required emergency responses. Nevertheless, this new team and its successor in 1980 were able to maintain high levels of growth in the health sector budget and brought significant new resources to the activities that had been initiated under the Rural Penetration Program (see Appendix H).

During the period following Aguilar Paz, the general structure of the Rural Penetration Program was retained, as was the training of health workers at various levels, with continued A.I.D. funding until 1981. Almost all the programs of the Rural Penetration Program were extended: from 1978 to 1980 over 70 new health posts were built, 1,929 new wells were installed, 26,193 latrines were built, and high levels of immunization coverage were achieved (Ministry of Health 1980d). However, by all accounts, the high levels of community participation and enthusiasm of the early years of the program began to decline (Martin 1981; Ministry of Health 1978a). Few new initiatives were taken to solve the problems that were emerging in program administration and in logistics and supply. Guardianes began to abandon the program since they were no longer receiving drugs and other supplies (USAID/Honduras 1980a). Services that were established during the 1973-1978 period experienced a decline in effectiveness as the program was extended to a wider population (USAID/Honduras 1980e). It appears that the continued extension of the program into new regions was overtaxing the system, even though the whole national program was receiving significant budgetary increases.

The one area in which program activities appeared to continue to grow and improve was the water pump and latrine program and its system of promoters. This program has continued to receive foreign material support and has developed a fairly efficient supply system. Its personnel are highly motivated and the communities appear to be strong supporters of their activities.

4. SUSTAINABILITY FACTORS

4.1 National Commitment to Project Goals and Project Negotiation

This program began as a Honduran initiative and received full support from the military governments of Lopez Arellano and his successor Melgar Castro. Hondurans appear to have been quite proud of this program and its national origins. Although other donors were instrumental in the development of the Rural Penetration Program, no single donor dominated and all openly recognized the importance of the national initiative.

A.I.D., however, had lost significant influence in the health sector. The major A.I.D. health program during the early 1970s had been the family planning program, which was not only a politically sensitive issue, drawing charges of imperialism from the university and religious attack from the Church, but which also created strong jealousies within the Ministry because it was a vertical, privileged program. A.I.D.'s association with this program and rigid resistance to the Ministry's desire to change the program organization made it difficult for A.I.D. to have significant influence in other health areas. Nevertheless, A.I.D. support was welcome as long as A.I.D. was willing to adapt to the established national priorities. A.I.D. provided funding for three other Honduran-defined priorities: training of nurse

auxiliaries and community health workers, water and sanitation programs in rural areas, and nutrition planning. It was not until 1982, under A.I.D.'s large Health Sector I project, that A.I.D. again began to play a major role in designing programs for the health sector, having prepared the path by working closely with Honduran counterparts to develop the priority areas of mutual interest.

After the Lopez Arellano period, national commitment to the Rural Penetration Program was not as strong as it had been. When Policarpo Paz assumed power, the priorities of the Government and of the Ministry shifted, and commitment to the program began to decline. The shift was not radical, but over time the effectiveness of the program diminished.

4.2 Institutional Organization of Projects

The Rural Penetration Program was perhaps the most integrated program ever implemented by the Ministry of Health. It was one of the earliest examples in the world of a national, large-scale integrated program. The Ministry's broad planning exercise involved most levels and divisions in the Ministry. The Ministry absorbed the vertical family planning program and began to integrate the National Service for Malaria Eradication (SNEM). A new system of cost control and maintenance was initiated throughout the Ministry. All normative programs were designed to fit within the integrated plan and to be phased from regional programs to full national activities. In addition, because the Ministry had been decentralized to give greater budgetary, personnel, and programmatic responsibility to the regions, the integration of activities had to take place at several levels of the Ministry.

This integration avoided the isolation of privileged programs that occurs with vertical programs. It also provided considerable incentives to motivate personnel at all levels and in all divisions within the Ministry, avoiding the gravitation of the most qualified people to the privileged sectors with their vertical programs, which had happened in the past.

However, the high degree of integration required a level of coordination and logistical support that the Ministry was illequipped to maintain. These problems became especially exaggerated as the program expanded to ever-widening areas in an attempt to serve as large a population as possible. As the system overreached its administrative capacity, the difficulties of maintaining fully integrated activities became greater. Low levels of managerial skill, poor information systems, and major bottlenecks within the logistics and supply systems all conspired to weaken the effectiveness of the program. The complexity of the system, with so many different types of health workers and a logical but impractical hierarchy of referrals to higher service levels, worked against a focusing of resources on key bottlenecks and priority areas. The continued weakness of the immunization programs, the decay of SNEM, and chaos in the supply of medicines were all due in part to the complexity of a fully integrated structure.

Although the program declined in effectiveness with the shift in Government commitment and the collapse of integrated coordination, the program outputs were, nevertheless, moderately sustained. The national Government continued to pay the salaries of the core health workers in the system: auxiliary nurses and promoters. Although supplies to each health post apparently

declined, they nevertheless continued to be provided. Indeed, it seems likely that the total amount of medicines and materials may have increased, but not at a sufficient rate to keep up with the growth in health services. Supervision of the nurse auxiliaries and community health workers was also maintained, albeit at an insufficient level.

The programs that were most effectively sustained after the 1978 change in Ministry leadership were those that had received A.I.D. support for a transition period of at least 3 years. The auxiliary nurse training program, which was at the core of A.I.D.'s Integrated Rural Health/Family Planning project, was supported until 1981, when it became a fully national program no longer dependent on external support. Some aspects of this program have changed; for instance, the Choluteca school, which originally had a nurse auxiliary training program for rural service, now trains its students for hospital service as well, a change that some observers feel dilutes the primary health care emphasis of the original program. Nevertheless, the nurse auxiliaries are still the backbone of the rural health system and are well trained and generally well motivated to promote primary care activities.

The second significant program that A.I.D. funded -- the rural water pump and latrine program of the Ministry's Division of Environmental Sanitation (funded with \$1.67 million from the Nutrition Planning project) -- was also one of the major sustained activities of the Rural Penetration Program. This program supported the activities of the promoters by providing some training and much of the materials necessary for water pumps and latrines. The costs of the promoters' salaries and their training programs are now covered by national funds, and the systems constructed during the life of the project (1976-1981) are relatively well maintained by the communities and the promoters; however, the continued expansion of the program into new communities has relied on a constant flow of external resources from A.I.D., IDB, and other donors.

4.3 Financing

As with all other new health initiatives, the Rural Penetration Program depended heavily on foreign sources of funding. PAHO, UNICEF, IDB, and A.I.D. provided over \$9 million during the first 5 years of the program. At the same time, the Government of Honduras was contributing increasing proportions of its internal health funds to the program (Bossert 1982). Over this period, the budgetary priorities of the Ministry shifted significantly from the hospital sector to primary care (see Appendix H), and much of this activity was encompassed by the Rural Penetration Program. The Government showed its commitment by assuming the salary costs of personnel who had been funded under foreign programs -- with the exception of approximately half the personnel in the family planning program.

It should be noted that some decisions made during this period ran counter to the priority of primary care programs. The decisions to construct the Hospital Escuela and the two regional and eight area hospitals set in motion a process that was difficult to control. These hospitals are a continuing drain on the national health budget and limit the national resources available for the primary health care activities of the Rural Penetration Program. Because the recurrent cost burden of the new hospitals did not begin until after 1978, the Ministry was

able before that time to devote increasing amounts of national funding for the Rural Penetration Program, especially as foreign funding also gave priority to primary health care. However, after 1978, spending in the hospital sector was controlled only with great difficulty. Two factors accounted for the Ministry's success in retaining the proportion of hospital to primary care spending established during the Aguilar Paz period: (1) the delay in the construction of some hospitals (to date, none of the IDB-funded hospitals is in operation) and (2) the rapid growth in foreign funding for primary care activities. Indeed, the growth in foreign sources of funding for primary care may have allowed the Ministry to allocate greater proportions of internal Honduran funds to the hospital sector while maintaining the same overall balance in the budget between the hospital sector and primary care. However, as a result of the decisions to expand the hospital system, the large increase in recurrent costs that will have to be met by the Ministry is likely to limit the national capacity to sustain programs that have been funded from foreign sources.

4.4 Technical Assistance

Technical assistance played a significant role in the development of the Rural Penetration Program. PAHO advisers were instrumental in the design of the program and in a variety of technical and normative fields. A.I.D. technical assistance was important in the design and initial implementation of the training programs for nurse auxiliaries, empirical midwives, and guardianas. Technical assistance was also important in the design and construction of the new health facilities -- although in some cases, especially the design of the area hospitals (CHE), this assistance appears to have been of poor quality.

Technical assistance appears to have been provided mainly through short-term specialists who worked fairly well with their Honduran counterparts and were phased out quickly. There was no central coordinated group of long-term consultants, as there is in Health Sector I. Given that the program was maintained with little long-term technical assistance, this form of short-term assistance appears to be consistent with sustainability.

4.5 Donor Coordination

During the period of the Rural Penetration Program, there were a few specific cases of programmed coordination among donors. IDB provided a nonreimbursable loan that funded PAHO technical assistance for administrative development. However, most donor activity was pursued independently within the framework of the Ministry's established program. PAHO made major contributions to the design of the program through its flexible new planning efforts. It also provided technical assistance in various key areas of the program, as well as fellowships for human resource training. UNICEF, switching from its major commitment to malaria control in order to train village-level health workers in western provinces, provided funds and models for training the representantes and guardianas. A.I.D. funded the construction of training facilities and developed curricula for training auxiliary nurses and villagelevel workers. The IDB provided funds for the construction of health facilities, including the health centers and health posts that were part of the Rural Penetration Program. This de facto division of labor among donors appears to have occurred without the intervention of any coordinating agency and without an established plan for coordination.

The lack of explicit coordination may have contributed to the failure to develop the hospital construction program in a manner consistent with the rest of the Ministry's activities. The ambitious construction program was to plague the Ministry of Health after 1978, when hospitals began to come into operation or to near completion, and funds had to be found to meet the recurrent costs of operations.

4.6 Training

The Rural Penetration Program involved extensive training programs for new auxiliary nurses, with new orientation toward rural primary care; a new type of paid health worker, the promoter; and three types of village volunteer workers: the guardian, representante, and empirical midwife (Ministry of Health 1977a). The training programs for the nurse auxiliaries and promoters were well designed, and the graduates have been effective in delivering health services when they have appropriate supervision and supplies (Massey 1976). A.I.D.'s Integrated Rural Health project contributed significantly to the training of nurse auxiliaries and provided some assistance to the training of promoters. A recent study of auxiliaries suggests that many are still practicing in the rural areas for which they were trained.

One aspect of the training program of auxiliary nurses has, however, changed. Originally, one of the three schools, Cholulteca, was designed to train auxiliaries only for work in rural areas. This choice was made in order to deemphasize the curative orientation of training for auxiliary work in hospitals and to encourage more attention to the special needs of rural areas. After several classes were graduated, however, all the available positions for nurse auxiliaries in rural health posts were filled; as a result, many graduates were placed in hospitals, in positions for which they had not received sufficient training. The school therefore restored hospital training to its curriculum to enable it to train multipurpose auxiliaries. This choice was unfortunate because there are not enough rural nurse auxiliaries to temporarily replace auxiliaries on leave (usually 3-month maternity leave). When nurse auxiliaries take leave, their health posts are closed. At any given time, approximately one-quarter of the health posts are closed for this reason.

The training of community-level volunteers, however, was not quite as effective. Training periods were judged by evaluators to be too short to provide sufficient knowledge to the guardian. The role of the representante was never clearly defined, and the type of training received was also deemed insufficient. The program component involving these two types of community workers has been the least successfully maintained portion of the Rural Penetration Program. Training of the midwives, however, was more effective, and a recent study (Martin 1981) suggests that the midwife program has been more successfully sustained than that involving the other community volunteers.

Continuing education and short-course training were also provided to personnel throughout the Ministry. Courses on community organization, health planning, and administration, as well as specialized courses on specific health issues, were supported by both national and international funds. A.I.D. and PAHO were particularly important donors, but IDB also provided funding for administrative training.

4.7 Community Participation

One of the hallmarks of the Rural Penetration Program was its emphasis on involvement of the community in health activities. The promoters were trained to motivate and organize communities to form health committees, which were to help set community priorities, select individuals to be trained as guardianes and representantes, and provide labor and some materials for health activities in the locality. The guardianes were village volunteers who were trained in short 1-week courses and supervised by the auxiliary nurses to provide basic primary care with simple medicines, some follow-up, and assistance in immunization and health education campaigns. The representantes were leaders in the community who helped maintain the community health committee, organized local work forces and materials, and worked closely with the promoters in sanitation and water projects.

In many localities, these workers were chosen and trained by active community health committees, which also participated in deciding health priorities within the programmed activities of the Ministry. The latitude of decision-making was restricted to selection of personnel for training, location of pumps and latrines, and local labor and material support. Although no systematic study was done of community-level participation, several studies do indicate that it was extensive in many communities (Bravo 1982; Martin 1981; Ministry of Health 1978a).

Community participation, however, was difficult to maintain. Participation appears to have depended on the regular provision of supplies and supervision of the community volunteers to provide the incentive and means to carry out the expected activities. Even during the 1973-1978 period, there is evidence that the early high levels of participation had begun to fall off as logistics, supply, and supervision problems accumulated. During the following period, community participation did not receive high-level support and in some instances was discouraged by governments concerned about internal security (Bravo 1982; Martin 1981).

Although community participation contributed somewhat to program effectiveness, participation itself appears to have required an effective program in order to be sustained.

4.8 Effectiveness

During the core period of the Rural Penetration Program (1973-1978) when the Aguilar Paz team was implementing the program, it appears to have been a fairly efficient program that was likely to have provided significant health benefits to an ever-widening population. It developed and implemented a fully integrated rural health care delivery system with a wide network of new health posts, specially trained auxiliary nurses and promoters, and broad-based community participation, both in terms of community health committee decision-making and in terms of village volunteer activity. The implementation was phased to grow from two prime regions to eventually cover the whole country.

However, as the program expanded, even during the core period, some problems began to develop. Logistics and supply problems became increasingly acute with the rapid addition of new health posts and expansion to new communities. These problems would plague subsequent administrations and would undermine the

effectiveness of community-level workers and nurse auxiliaries. In addition, immunization programs, especially for polio and measles, had not reached sufficient levels to prevent the outbreak of epidemics in the years immediately following the replacement of the Aguilar Paz team. Nevertheless, during the core period, the program in general was one of the more effective, broad-based health activities implemented in Honduras.

Two A.I.D. projects implemented during this period were not only partially responsible for the general effectiveness of the Rural Penetration Program, but also maintained the program's effectiveness for several years after the core period. The auxiliary nurse training program of A.I.D.'s Integrated Rural Health/Family Planning project was particularly effective and was sustained with national funds after the end of A.I.D. support. Empirical midwife training also appears to have been quite effective and sustained. The training of guardianas was less effective, since their utility was circumscribed by logistic and supply problems and lack of clear supervision.

The second important A.I.D. contribution to the Rural Penetration Program was the water and sanitation subcomponent of the Nutrition Planning project. This project contributed significant training and materials for the promoters and their well and latrine projects. These projects appear to have been well received during the first years of the project, and the wells and latrines have been maintained in many communities, although maintenance has varied considerably.

A.I.D. projects that were not particularly effective during the life of the projects were the Maternal and Child Health/Family Planning project (as well as the family planning component of the Integrated Rural Health/Family Planning project) and most of the subcomponents of the Nutrition Planning project. Family planning was rejected by the Ministry, and nutrition planning was never able to overcome the obstacles inherent in multisectoral programs.

5. SUSTAINABILITY

The Rural Penetration Program of the 1973-1978 period was relatively well sustained in subsequent periods, although its effectiveness declined as services were extended to new areas and as subsequent governments changed the priorities.

Some components of A.I.D. projects within this program extended beyond the core period and were then sustained in subsequent periods. The auxiliary nurse training program was the only major project component that was sustained with national funds after A.I.D. funding ceased. The water and sanitation projects put in place during the life of the project were also sustained with national funding for the promoters. This program, however, has continued to receive A.I.D. funding, as well as other foreign funding, for the construction of new wells and latrines.

Other A.I.D.-supported activities have not fared as well. Family planning activities were severely curtailed until the mid-1980s, when renewed efforts under Health Sector I were adopted by the Ministry. Nevertheless, some of the acceptors of the earlier program still seek and receive contraceptives from Ministry of Health facilities. This is a minor sustained aspect of an ambitious program that failed. With the exception of the water and sanitation subcomponent, the Nutrition Planning project was not well sustained after funding ceased.

Finally, the training of guardianes in the Integrated Rural Health project was only modestly sustained. Reports suggest that fewer than 40 percent of those trained continue to perform their functions and attend scheduled meetings. Nevertheless, these community volunteers are a resource that the Ministry has begun to utilize more effectively in the current period of Health Sector I.

APPENDIX G

HEALTH SECTOR I PROJECT{1}

Because Health Sector I is an ongoing project, we cannot, of course, examine whether it has been sustained. Strictly speaking then, this case cannot provide evidence for our systems approach methodology. Nevertheless, based on the conclusions from the other five cases, where we were able to judge whether components were sustained, we can attempt to evaluate the sustainability of aspects of Health Sector I.

Health Sector I initiated a new period for the Honduran health system. At \$30 million for 5 years, Health Sector I represents the largest single foreign source of funding in the health sector (USAID/Honduras 1980f). During the period of its implementation, other foreign donors have also significantly increased their contribution to the health sector (see Appendix H). This flood of foreign funding has raised the question of Honduran capacity to absorb the funds. The large amount of funding also presents an unprecedented challenge for sustainability. It is unlikely that Honduran resources could easily or rapidly replace the large amount of foreign funding currently being provided.

Although it is likely that Honduras will continue to receive large amounts of foreign funding, there is nevertheless reason for Hondurans to be concerned that current programs would have to be discontinued or greatly altered should international donors, and A.I.D. in particular, shift priorities from health or from Honduras and dramatically reduce their support.

In this context, it is important to attempt to identify (1) components of the project that are likely to be sustained at some level of effectiveness even if donor support is terminated, (2) components that might be sustained only if other sources of foreign funding are obtained, and (3) components that are likely to be terminated once A.I.D. funding ceases. These are difficult questions to answer prospectively. Our analysis, therefore, is tentative and our conclusions should be taken more as hypotheses for future evaluation than as clear judgments about the actual sustainability of the project.

{1}Sources for this appendix include interviews with Juan de Dios Paredes, Gustaro Corrales, Yanuario Garcia, Rodolfo Magana, Raul Penna, Eduardo Aquino, Antonio Casas, Tom Park, Barry Smith, Anita Siegel, Peter Cross, John Holley, and David McCarthy (see Appendix I).

1. PRIOR CONDITIONS: PLANNING FOR HEALTH SECTOR I

After the team of health officials who had designed and

implemented the Rural Penetration Program had been removed from office in 1978, A.I.D. support for both the health worker training program and the rural water and sanitation program continued. At the same time, some initiatives were made by A.I.D. officials in the design of a large-scale, omnibus health loan. Over the course of 2 years, the Health Sector I project was designed through an extended planning process funded by an A.I.D. grant (USAID/Honduras 1979a; Hartman 1980).

The process was one of prolonged interaction and negotiation between Honduras and A.I.D. to identify priority areas and develop mutually acceptable measures to address these priorities. After years of tension and lack of communication between the Ministry and the USAID Mission, a new spirit of cooperation and mutual respect developed. Personal relations between key Honduran officials and USAID personnel and consultants were particularly good. At the same time, relations between the U.S. Government and the military Government of Policarpo Paz were moderately good. Under these conditions, A.I.D. was able to engage in a genuine policy dialogue in which U.S. interests and objectives for the health sector were developed in mutual negotiation with the Hondurans, ensuring that Honduras would not view the program as one imposed by A.I.D. -- as had been the case with some previous programs.

The planning project identified a large number of areas of particular concern (USAID/Honduras 1979a). Eighteen subcomponents were identified and designed: prevention and control programs for malaria, rabies, diarrhea, tuberculosis, and sexually transmitted diseases; immunization programs; maternal and child health and family planning; epidemiology training; basic medicine list; logistics system; maintenance; management and planning; mass media for village health workers; teacher training; extension of supervision; continuing education for Ministry employees; and operations research. The core of this project was a large technical assistance management team, which would provide major support for many of the components, especially the management and planning component.

2. IMPLEMENTATION

Although the loan was signed in 1980, implementation of the program was delayed until 1982 because of changes in personnel in the Ministry, funding cycles, delays in procurement, and the contracting of technical assistance (which involved Honduran approval for all personnel). However, the delay was also associated with the long transition from military governments to democracy that dominated the 1980-1982 period. Once the newly elected Government of Suazo Cordoba assumed power, the Ministry was again in a position to address the new initiatives in health. Several individuals who had been intimately involved in the planning stage of Health Sector I assumed high-level positions in the Ministry and began to work closely with the USAID Mission and the technical assistance contractor, Management Sciences for Health (MSH).

The project was implemented in a unique organizational structure that avoided the extremes of both vertical and integrated designs (Edmonds 1986a; A.I.D./Westinghouse Health Systems 1984; Godiksen 1986). A large project with major amounts of technical assistance, Health Sector I involved most divisions of the Ministry, eventually reaching down to regional levels as well. No one division of the Ministry was unduly favored by the loan funding. Each project subcomponent involved specific

objectives and, in some cases, the development of new organizations within existing structures. The management and planning component, one of the largest in terms of funding, could provide training and technical assistance back-up for management problems identified in the other subcomponents. The system of support was similar to a matrix of separate projects united by a dominant management and planning component.

Two other centrally funded projects were initiated in the early 1980s: Mass Media and Health Practices, and Changing Maternal/Weaning Practices. The mass media project began as a single-region pilot program to design a social marketing approach to mass media messages for diarrhea control (USAID/ Applied Communication Technology 1985). The project was initially organized under a new unit within the Ministry, which was charged with developing the health messages. Project evaluations were extremely positive concerning effectiveness in increasing knowledge of and changing practices regarding diarrhea. Later, the project was integrated into Health Sector I and expanded to the national arena, where it incorporated messages associated with other aspects of Health Sector I, such as breast feeding and family planning. Recent evaluations suggest that the expanded program is quite effective, albeit at a significantly lower level than was the pilot project.

The Changing Maternal/Weaning Practices project, developed as a vertical program, was not initially integrated into other Health Sector I activities and was not well integrated into the Ministry. Although the project was effective in reaching its immediate goals, evaluations were quite critical of the vertical nature of the program, the lack of dispersion of knowledge beyond those directly involved in the project, and the developing resentment in other departments (Ministry of Health 1983c; USAID/Honduras 1984d; USAID/International Nutrition Communication Service 1985). After these critical evaluations, efforts were made to integrate the project into other Ministry activities. At the time of this writing, it was too soon to evaluate the effectiveness of this integration.

3. EVALUATIONS

Health Sector I has received quite favorable assessments in the two major evaluations done in 1984 and 1986 (A.I.D./ Westinghouse Health Systems 1984; Edmonds et al. 1986a). Significant advances have been achieved in the malaria control and immunization subcomponents, where more aggressive programs (i.e., whooping cough, polio, tetanus, and diphtheria) have exceeded project goals. Although logistical problems remain in both programs, major achievements have been obtained through efforts to improve the maintenance of the cold chain. Efforts to improve management capability and administrative support through training and development of rationalized and simplified systems of maintenance, supply, procurement, and information gathering, analysis, and dissemination were judged to be generally quite effective. Health education activities were also given high marks. While no direct link could be established between Health Sector I and improvements in infant mortality trends, two recent studies appear to demonstrate a significant decline during the project period (Guzman 1986; Morazun 1985).

The evaluations, however, were critical of one central aspect of Health Sector I. They found that although the complexity of the project, involving so many subcomponents, had

given Health Sector I the flexibility to respond effectively to targets of opportunity and to continue working when obstacles to implementation emerged, this same complexity inhibited the capacity to follow through on some high priority subcomponents. In particular, problems were identified in the areas of cost recovery, development of storage capacity, creation of basic information systems, and supervisory follow-up between levels of service and management. This conclusion suggests that in its attempt to provide a wide range of discrete programs, Health Sector I has sacrificed some of the effectiveness that comes from focusing attention on a few specific priorities. We will consider this possibility in relation to the objective of project sustainability in our analysis of the institutional organization factor (Section 4.2).

4. SUSTAINABILITY FACTORS

4.1 National Commitment to Project Goals and Project Negotiation

Since 1982, two successive democratic administrations have given consistently high support to Health Sector I. Relations among the Ministry, the USAID Mission, and Management Sciences for Health (MSH) have remained very good. In some aspects, these relationships improved after personnel changes were made and MSH incorporated within its organization some key Ministry officials who maintained good access to the Ministry. Current Ministry officials appear to be as committed to the goals of Health Sector I as were the originators. The fact that Health Sector I originated under a military regime and was implemented by two successive civilian regimes suggests that the program reflects an enduring Honduran commitment to project goals. This commitment may be due to the wide net of activities and objectives of the project and the current international interest in many of its activities (e.g., diarrhea control, immunizations, and breast feeding). There may be a wider consensus around these programs than there was around the initial family planning program, the Nutrition Planning project, or even the malaria eradication programs.

We might also note that the level of commitment to reforms in the health sector is not as high during the 1980s as it was during the early period of the Rural Penetration Program. It would be difficult under any circumstances to maintain the high level of enthusiasm of that period; however, without a general governmental commitment to large-scale reform efforts, it is unlikely that any one sector could achieve that level of commitment. Within the context of nonreformist and economically strapped governments, the level of commitment to Health Sector I goals is extremely high.

There is, however, some concern that the U.S. presence and influence are too great. Project negotiation may in fact have been too successful. The large technical assistance team and the great variety of Ministry activities in which Health Sector I participates raise questions of the degree to which the project is dominating the activities of the Ministry. This concern is expressed even by those who in general support the goals of the project and consistently work closely with MSH. There is also some indication that a more nationalistic response is growing against the large U.S. presence and influence. This response has not yet been widely articulated, but it is a potential

consequence of too much success in project negotiation.

4.2 Institutional Organization of the Project

Health Sector I was uniquely designed as a matrix of targeted program priorities united by a dominant management and planning component. This design allowed the project to avoid the weaknesses of highly visible, autonomous vertical programs, the perils of which were most apparent in the Maternal and Child Health/Family Planning project of the 1960s and early 1970s. The design also appears to avoid the difficulties experienced by highly integrated programs such as those of the Rural Penetration Program. Highly integrated programs have difficulty focusing resources on priority areas and responding flexibly to bottlenecks in the complex system. The matrix design of Health Sector I allows for institution building in response to specific management problems as they arise in the course of implementing the series of subcomponents. Hence, information systems are designed around training problems, special management programs are developed for maintenance problems, cold-chain maintenance is improved to support the immunization campaign, and so on.

It is still too soon to determine the long-term implications of this matrix design, so it is not yet possible to conclude that this implementing organization is more sustainable than the vertical or integrated approaches of other programs; however, it does appear likely that it will be. By providing support for many different divisions in the Ministry, it avoids the potential for institutional resentment that builds up against privileged, vertical programs. It also avoids the tendency of vertical programs to draw the most qualified people away from other Ministry programs. The matrix design also provides the institution-building benefits of integrated programs through its management and planning component, while maintaining the flexibility to focus efforts on problem areas as they arise and respond to changing priorities, something highly integrated programs have difficulty doing.

This conclusion suggests that the evaluations of Health Sector I that criticize its lack of focus as a factor inhibiting its effectiveness may be too harsh. Its effectiveness may rather depend on the wide net of activities and the flexibility it is able to exercise in addressing the multitude of implementation problems that arise. If, however, the evaluations are correct, the same institutional elements that might contribute to sustainability (project complexity and flexibility) might hinder immediate project effectiveness. Our study of previous health projects, especially the experience with malaria control and family planning efforts, suggests that a drive for immediate effectiveness that does not also involve institutional development may ultimately endanger sustainability.

4.3 Financing

As noted in the introduction, the financial aspects of Health Sector I make it extremely unlikely that the program can be sustained if all A.I.D. funding ends as scheduled. A recent study of the ability of the Honduran Government to fund the implementation and recurrent costs of the activities under Health Sector I concluded that it was highly unlikely that sufficient internal funding would be available for the Honduran Government

to finance recurrent costs (Birch and Davis 1984). According to this analysis, the Honduran Government has had difficulty contributing its counterpart funding of 2 percent of the internal health budget, and a significant portion of this funding has come from U.S. sources through the Economic Support Fund. Recurrent costs of the program would require shifting at least 7.5 percent to 10 percent of the internal health budget to program activities.

We are unlikely to be able to test the ability of the Honduran Government to absorb the recurrent costs of Health Sector I. Health Sector I has been extended for a follow-on period through 1987, and the Mission is now planning a major new project: Health Sector II. It seems likely that A.I.D. funding will continue for at least the next 7 years.

Nevertheless, the project has set some conditions that might make it more likely to be sustained. Personnel line items have been added to the Honduran health budget according to the project agreement, and the Honduran Government is now pledged to maintain most of the salaries for personnel positions created by the loan activities. The sustainability of this commitment, however, is undermined by the fact that much of the counterpart contribution of the Government is covered by support from A.I.D.'s Economic Support Fund.

The project agreement also commits the Government to restrict expansion in the hospital sector in order to maintain sufficient national resources for primary care programs. Although this agreement has been honored up to the present (indeed, hospital spending has been declining as a percentage of the national budget--see Appendix H), two factors could undermine this commitment in the future. The first is the new medical salaries law that has at least doubled the salaries for physicians, whose salaries make up a large part of the hospital budget. The second new element is the new Inter-American Development Bank (IDB) loan of \$27 million, with \$19 million in counterpart funding. This loan, which has been approved by the IDB, will fund the equipping and start-up costs of several of the hospitals that IDB had constructed but not yet completed, including the new 600-bed hospital in San Pedro Sula. These hospitals had been delayed for a variety of reasons, including the decision of the Government to freeze hospital spending from 1983 to 1985. With the new loan, it seems unlikely that the Ministry will be able to keep its commitment to support primary care with national funds (Holley 1986; Management Sciences for Health 1986b). The recurrent costs of the hospitals could increase the proportion of the national budget that goes to the hospital sector, at the expense of the primary care programs. As long as the primary care sector continues to gain international funding, however, the Ministry may not have to face the trade-off choice.

4.4 Technical Assistance

Health Sector I has provided an unusually large amount of technical assistance for an A.I.D.-funded project. Almost one-third of the total budget is for technical assistance. MSH has established a long-term presence in an office across the street from the Ministry. Both long- and short-term consultants are constantly working in the Ministry and also often in the regional offices. These technical advisers not only provide technical advice but have also been instrumental in prodding the Ministry

bureaucracy to accomplish goals set in the project. As such, technical assistance is an integral part of the implementation process of the project. This large and moderately assertive group of consultants is able to give unusual levels of coordinated support to its Honduran counterparts.

With few exceptions, the quality of technical assistance has been high and relations between consultants and their Honduran counterparts have been good. It appears that counterparts are learning from the consultants and that good working relations are leading to high levels of mutual respect and cooperation. Because much of the technical assistance involves the transfer of management skills, it is likely that Honduran counterparts will be able to utilize their experience even after the technical assistance is withdrawn.

It is clear, however, that not much thought has been given to phasing out the large-scale technical assistance. As long as plans for a second health sector loan of similar magnitude are in the works, it is unlikely that the technical assistance will be reduced in the near future.

The other institution that provides major technical assistance is the Pan American Health Organization (PAHO). Most of its \$1 million yearly budget goes to pay consultants' salaries. It also provides a coordinated center of support for its technical assistance and, because it is housed within the Ministry, usually has easy access to the highest levels of the Ministry. The crucial difference between PAHO and A.I.D.'s technical assistance is that PAHO's assistance is designed to be a permanent process of international cooperation, while that of A.I.D. is tied to a single project and could be terminated when the project ends. In other words, sustainability is not an issue for PAHO, because its presence is permanent, but it is an issue for A.I.D.

It is unclear what impact the withdrawal of this large group of technical advisers would have on the sustainability of the A.I.D. programs. Not only has their expertise in technical areas contributed to the effectiveness of current programs, but their assertiveness, backed by the legal commitment of the loan agreement and by the significant funding that supports their efforts, may be irreplaceable. However, although the quality and efficiency of the programs might decline without technical assistance, the trained counterparts and the management systems that have been put in place are likely to be able to sustain a major portion of the activities, especially given that much of the technical assistance is designed to help create new, simplified administrative systems. The fact that several of the initial Honduran counterparts are now working for MSH and providing technical assistance to their former colleagues in the Ministry is a positive sign, although their high salaries may make it difficult for them to find similar work in Honduras after the project ends.

4.5 Donor Coordination

In general, there has been only informal coordination of efforts among donors in the health sector. There are a few examples of coordination on specific project subcomponents -- for instance, PAHO, UNICEF, and MSH worked closely in implementing the local programming project in 1985. Nevertheless, this type of intense coordination is the exception. Although there are

regular meetings for information exchange among donors, there really are no mechanisms for coordination of activities. Because the programmatic activities of A.I.D. and PAHO are defined in similar ways, there is considerable overlap and duplication of effort. This duplication often causes conflicts over specific objectives and confusion within the Ministry. With such a large amount of foreign funding now coming from an increasing number of donors, the problem of lack of coordination has alarmed the Ministry. It is now attempting to establish, with PAHO assistance, an office to coordinate and channel donor support so that the Hondurans can establish priorities and rationalize the different donor interests.

It is unclear how this lack of coordination could affect the sustainability of the A.I.D. programs. It could be argued that the duplication of donor efforts might in fact contribute to sustainability, especially if the donors do not phase out their support at the same time. Duplication of efforts may simply mean that a larger supply of human resources or materials will be available once the assistance of one donor is terminated. However, it seems more likely that formal coordination of efforts would allow the Ministry to plan a phased withdrawal of donor assistance or at least direct the assistance from different donors so that this assistance will complement activities in the long-term plans.

4.6 Training

The training components of Health Sector I are directed toward continuing education of Ministry employees. Large percentages of health workers have participated in short courses in aspects of the priority programs: diarrhea control, respiratory infections, malaria, tuberculosis, immunization, and family planning. In addition, special training courses in management systems were held throughout the Ministry. These courses were designed in relation to specific priority areas in which administrative bottlenecks have occurred. The training programs have been organized to develop a permanent corps of experienced trainers at the central, regional, and local levels.

One major concern has been raised about Health Sector I training and the training programs of other donors: there appears to be a surfeit of training activities, to the detriment of ongoing administrative activities. So many employees are taking advantage of training programs -- and their per diems, which often mean additional income -- that they are often taken away from their assigned duties. This problem is exaggerated by the fact that several donors (especially PAHO and A.I.D.) are running simultaneous training and education activities.

Nevertheless, the training programs appear well designed to sustain Health Sector I activities in the future. Even if the training programs themselves were to lose continued funding support, the individuals trained and the corps of experienced trainers are likely to continue functioning.

4.7 Community Participation

There was very little concern with the development of community participation in the initial plans for Health Sector I. The logic of the project was to develop the Ministry's capabilities from the center outward toward the regions and areas

and to reach the community directly, primarily through mass media programs. The rationale for this approach was that community participation depends heavily on a consistent supply of medicine and supplies and on a well-developed system of supervision. Because the Ministry was ill-equipped to provide regular supplies and supervision, it was deemed necessary to develop these systems before restoring efforts to involve the community in active participation and decision-making. Thus, the deterioration that had already begun in the high levels of participation of the Rural Penetration Program period was allowed to continue throughout the period up to 1985.

In 1985, the widespread efforts in local programming began to reinvigorate community participation, at least in some regions (Ministry of Health 1985b, 1985c, and 1986c). However, there is as yet no clear evidence of the extent of this community participation. It is likely that we must again conclude that it is community participation that needs to be sustained and that community participation itself does little in the Honduran context to sustain the project.

4.8 Effectiveness

As noted above, evaluations of Health Sector I have been generally positive, suggesting that the project has been quite effective in many of its subcomponents. The project has been criticized for not having the kind of focus that might have increased its effectiveness; however, the evidence for this conclusion is open to other interpretations. It is just as possible to view the complexity and flexibility of Health Sector I as a major contributor to its demonstrated level of effectiveness.

Two programs that were originally started as child survival initiatives and organized as separate vertical projects -- Mass Media and Health Practices project and Changing Maternal/Weaning Practices project -- were both judged quite effective in their initial phases (A.I.D./Applied Communication Technology 1985; A.I.D./International Nutrition Communication Service 1985). Both also have made significant efforts to become fully integrated into the Ministry's existing organizational structure. Although this integration has resulted in some dilution of their initial effectiveness, it nevertheless has allowed a significant expansion of the programs, with indications of their continuing effectiveness.

5. SUSTAINABILITY

It is important to reiterate that our conclusions about the sustainability of Health Sector I are extremely tentative. We have drawn lessons from the experience of projects that have terminated to make suggestions about the ability of Health Sector I activities and benefits to continue should A.I.D. funding cease.

We believe that it is extremely unlikely that the Honduran Government could provide the internal funding necessary to continue many of the project activities. Not only has it been difficult for the national Government to provide counterpart funding for the current implementation phase, but the Government itself is becoming increasingly dependent on foreign funding for all of its programs. In the health sector, the anticipated expansion of the hospital sector -- which had previously been restrained -- is likely to further limit the Government's ability

to take on additional responsibility for the primary care programs now funded by many foreign donors. The lesson of the malaria programs in the early 1970s suggests that the risks of this multiplicity of overlapping donor programs are quite great.

It is likely that Health Sector I activities will require continued foreign funding, and A.I.D. should consider either a commitment to long-term support (similar in duration to that provided through the Inter-American Cooperative Public Health Service) or initiation of a cooperative effort with the Honduran Government and other donors to sequence donor support over the long term. With the prospect of Health Sector II, it appears that A.I.D. will have the opportunity to plan for long-term support if it now begins to consider the implications of this study.

It also seems to be the case that Health Sector I has been designed in ways that are likely to produce some enduring benefits, even if donor funding were to cease. The matrix organization is likely to avoid the pitfalls inherent in privileged vertical programs and highly integrated programs. Technical assistance that has emphasized the development of skilled counterparts and simplified administrative systems has been of sufficient long-term effectiveness to have created a basis for sustainability, even if it has run the risk of being such a large presence that dependence and resentment could develop.

Health Sector I was developed through a genuine policy dialogue in which the multiple goals and objectives were mutually defined over a long period. The Honduran Government has maintained a high level of commitment through three changes in government. It is likely that this commitment will be maintained in the future.

APPENDIX H

FINANCING

1. INTRODUCTION

This appendix discusses the financial aspects of sustainability within the context of economic and financial trends in Honduras. Section 2 briefly discusses the economy of Honduras; the levels of expenditure of the Ministry of Health and the dependence on external financing are examined in Section 3. The appendix concludes with a discussion of the relation of financial characteristics of projects and external financial issues to sustainability.

2. ECONOMIC TRENDS

Honduras, one of the poorest countries in the Western Hemisphere, experienced generally positive economic growth between 1950 and 1979, but the economy stagnated from 1979 to 1985. (Gross domestic product [GDP] and population data are presented in Tables H-1 to H-3.) In 1985, real per capita GDP was 565 lempiras (\$282.50), which was only 31.4 percent above the level in 1950.

The generally positive growth between 1950 and 1980 was

interrupted by the banana strike of 1954 (real GDP per capita fell 8.8 percent) and the 1969 war with El Salvador (real GDP per capita fell 2.9 percent). Honduras benefited from participation in the Central American Common Market from the early 1960s to 1969. Growth during the 1960s and 1970s was favorably affected by increases in banana exports, expansion in coffee exports, and the growth of manufacturing under high protective tariff barriers. In 1979, real GDP per capita peaked at 623 lempiras.

Beginning in 1980, real GDP per capita declined every year through 1983, when it leveled off. The Honduran economy was adversely affected by the world recession, deteriorating domestic terms of trade, the adverse political climate in Central America, and a halving of private investment. The public sector incurred deficits, which were financed by domestic borrowing and large transfers from the United States.

The Ministry of Health has been the implementing agency for most of the U.S. Government-supported projects examined in the present study. The malaria program was originally operated by the Inter-American Cooperative Public Health Service (SCISP), but was later transferred to the National Service for Malaria Eradication (SNEM), a semiautonomous organization under the Ministry of Health. Similarly, the rural water programs were supported by SCISP, but then became the responsibility of the National Water and Sanitation Service (SANAA), which is a semiautonomous organization affiliated with the Ministry. The other projects considered in the present study were directly controlled by the Ministry. Trends in Ministry expenditures provide information on the financial context in which individual projects were funded.

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Table H-1. Gross Domestic Product (GDP) in Honduras, 1950-1985

Year	Gross Domestic Product (in millions of lempiras)		GDP Implicit Price Deflator 1966 = 100
	Current Prices	Constant Prices	
1950	458	589	77.8
1951	487	615	79.2
1952	506	628	80.6
1953	549	666	82.4
1954	520	625	83.2
1955	557	662	84.1
1956	583	691	84.4
1957	605	721	83.9
1958	644	761	84.6
1959	667	778	85.7
1960	680	797	85.3
1961	718	819	87.7
1962	781	861	90.7
1963	820	889	92.2
1964	914	942	97.0
1965	1,017	1,039	97.9
1966	1,100	1,100	100.0
1967	1,196	1,151	103.9
1968	1,299	1,235	105.2
1969	1,348	1,239	108.8

1970	1,446	1,297	111.5
1971	1,551	1,367	113.5
1972	1,683	1,422	118.4
1973	1,895	1,502	126.2
1974	2,114	1,500	140.9
1975	2,241	1,455	154.0
1976	2,626	1,572	167.0
1977	3,321	1,752	189.0
1978	3,814	1,882	202.7
1979	4,387	2,010	218.3
1980	4,976	2,065	241.0
1981	5,293	2,089	253.4
1982	5,582	2,052	272.0
1983	5,891	2,042	288.5
1984	6,297	2,099	300.0
1985	6,719	2,160	311.1

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Table H-2. Population and Gross Domestic Product (GDP)
per Capita in Honduras, 1950-1985

Year	Population (in thousands)	GDP per Capita in Current Lempiras	GDP per Capita in Constant 1966 Lempiras
1950	1,369	335	430
1951	1,409	346	436
1952	1,451	349	433
1953	1,493	368	446
1954	1,538	338	407
1955	1,583	352	418
1956	1,630	358	424
1957	1,678	361	430
1958	1,727	373	441
1959	1,778	375	438
1960	1,831	371	435
1961	1,885	381	435
1962	1,948	401	442
1963	2,013	407	442
1964	2,080	439	453
1965	2,150	473	483
1966	2,222	495	495
1967	2,297	521	501
1968	2,373	547	520
1969	2,453	550	505
1970	2,535	570	512
1971	2,604	596	525
1972	2,675	629	532
1973	2,747	690	547
1974	2,820	750	532
1975	2,896	774	502
1976	2,975	883	528
1977	3,057	1,086	573
1978	3,141	1,214	599
1979	3,228	1,359	623
1980	3,318	1,500	622
1981	3,413	1,551	612
1982	3,511	1,590	584
1983	3,612	1,631	565
1984	3,717	1,694	565

1985 3,826 1,756 565

Note: Population figures for 1970 through 1985 are from Cuentas Nacionales, Central Bank. Figures for 1950 and 1961 are from the census (cited in Diagnostico de los Recursos Humanos, 1961-74, Secretaria Tecnica del Consejo Superior de Planificacion Economica, Unidad de Planificacion de Recursos Humanos, July 1976, p. 33). Population figures for 1951 through 1960 and for 1962 are interpolations.

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 Table H-3. Annual Growth Rates in Gross Domestic Product (GDP) per Capita in Honduras, 1951-1985 (percentages)

Year	Annual Growth Rates				GDP per Capita in Current Prices	GDP per Capita in Constant Prices
	GDP in Current Prices	GDP in Constant Prices	Implicit GDP Price Deflator	Population		
1951	6.3	4.4	1.8	3.0	3.3	1.4
1952	3.9	2.1	1.8	3.0	0.9	-0.8
1953	8.5	6.1	2.3	3.0	5.4	3.0
1954	-5.3	-6.2	0.9	3.0	-8.0	-8.8
1955	7.1	5.9	1.1	3.0	4.0	2.9
1956	4.7	4.4	0.3	3.0	1.7	1.4
1957	3.8	4.3	-0.5	3.0	0.8	1.3
1958	6.4	5.5	0.9	3.0	3.4	2.5
1959	3.6	2.2	1.3	3.0	0.6	-0.7
1960	1.9	2.4	-0.5	3.0	-1.0	-0.5
1961	5.6	2.8	2.8	3.0	2.6	-0.2
1962	8.8	5.1	3.5	3.3	5.3	1.7
1963	5.0	3.3	1.7	3.3	1.6	-0.1
1964	11.5	6.0	5.2	3.3	7.9	2.5
1965	11.3	10.3	0.9	3.3	7.7	6.7
1966	8.2	5.9	2.2	3.3	4.7	2.4
1967	8.7	4.6	3.9	3.3	5.2	1.2
1968	8.6	7.3	1.2	3.3	5.1	3.8
1969	3.8	0.3	3.4	3.3	0.4	-2.9
1970	7.3	4.7	2.5	3.3	3.8	1.3
1971	7.3	5.4	1.8	2.7	4.4	2.6
1972	8.5	4.0	4.3	2.7	5.6	1.3
1973	12.6	5.6	6.6	2.7	9.6	2.9
1974	11.6	-0.1	11.7	2.7	8.7	-2.7
1975	6.0	-3.0	9.3	2.7	3.2	-5.5
1976	17.2	8.0	8.5	2.7	14.1	5.2
1977	26.5	11.5	13.5	2.8	23.1	8.5
1978	14.8	7.4	6.9	2.7	11.8	4.5
1979	15.0	6.8	7.7	2.8	11.9	3.9
1980	13.4	2.7	10.4	2.8	10.3	-0.1
1981	6.4	1.2	5.1	2.9	3.4	-1.7
1982	5.5	-1.8	7.4	2.9	2.5	-4.5
1983	5.5	-0.5	6.1	2.9	2.6	-3.3
1984	6.9	2.8	4.0	2.9	3.9	-0.1
1985	6.7	2.9	3.7	2.9	3.7	-0.0

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 Central Government expenditures for public health are

presented in Tables H-4 and H-5. In constant (1966) prices, expenditures varied between 16.2 and 17.4 million lempiras between 1970 and 1973. Between 1974 and 1978, expenditures also varied but at a higher range -- between 23.5 and 32.1 million lempiras, reflecting the impacts of the programs initiated by Minister of Health Aguilar Paz. In 1980, expenditures jumped to 38.5 million; in constant lempiras, expenditures were at a new plateau between 1980 and 1985, varying between 37.5 and 40.9 million lempiras. In current lempiras, public health expenditures increased every year between 1980 and 1985, reaching 127.3 million lempiras in 1985, in part a reflection of the large inflows of Health Sector I funds.

In constant prices per capita, public health expenditures peaked at 11.60 lempiras in 1980, falling to 10.69 in 1985. But these levels in the early 1980s represented a significant increase above the levels for most of the 1970s. This improvement occurred in the face of a generally declining trend in the share of the central Government's expenditures devoted to public health. There was considerable variation in this share between 1970 and 1985. It is notable that the share of Government expenditures devoted to public health was below 7 percent for 1983 to 1985, whereas it had been above 7 percent for the preceding 12 years. These trends reflect the tendency of central Government expenditure growth to outstrip growth of the economy.

3. EXTERNAL FINANCING

In the early 1980s Honduras's external financial position deteriorated in a number of ways, including increased dependence on foreign debt to finance public health expenditures. Export revenues suffered because of weak international demand and production setbacks for some crops. Balance of payments deficits and the continued pegging of the lempira to the U.S. dollar led to a decline in international reserves of \$244 million between 1980 and 1984, despite growing U.S. concessionary aid.

The central Government became increasingly dependent on foreign funds to finance its budgets. By 1984, 28.8 percent of its budget was externally financed (Table H-6).

Table H-4. Honduran Ministry of Health Expenditures, 1970-1985

Year	As Percentage of Government Expenditures	In Current Lempiras (thousands)	In Current Lempiras per Capita	In Constant 1966 Lempiras (thousands)	In Constant 1966 Lempiras per Capita
1970	7.9	18,111	7.14	16,245	6.41
1971	7.4	18,453	7.09	16,264	6.35
1972	7.3	19,245	7.19	16,260	6.08
1973	8.2	21,912	7.98	17,368	6.32
1974	10.5	33,185	11.77	23,547	8.35
1975	8.3	32,793	11.32	21,291	7.35
1976	10.4	50,037	16.82	29,954	10.07
1977	8.5	49,576	16.22	26,154	8.56
1978	8.5	65,110	20.73	32,128	10.23

1979	8.0	69,592	21.56	31,885	9.88
1980	9.1	92,765	27.96	38,497	11.60
1981	9.8	99,157	29.05	39,134	11.47
1982	7.7	102,038	29.06	37,510	10.68
1983	6.9	109,722	30.38	38,033	10.53
1984	5.9	115,190	30.99	38,397	10.33
1985	6.1	127,284	33.27	40,919	10.69

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 Table H-5. Annual Growth Rates in Honduran
 Ministry of Health Expenditures, 1971-1985 (percentages)

Year	In Current Prices	In Current Prices per Capita	In Constant 1966 Prices	In Constant 1966 Prices per Capita
1971	1.9	-0.8	0.1	-2.5
1972	4.3	1.5	-0.0	-2.7
1973	13.9	10.9	6.8	4.0
1974	51.4	47.5	35.6	32.1
1975	-1.2	-3.8	-9.6	-12.0
1976	52.6	48.5	40.7	36.9
1977	-0.9	-3.6	-12.7	-15.0
1978	31.3	27.8	22.8	19.6
1979	6.9	4.0	-0.8	-3.4
1980	33.3	29.7	20.7	17.5
1981	6.9	3.9	1.7	-1.2
1982	2.9	0.0	-4.1	-6.8
1983	7.5	4.6	1.4	-1.4
1984	5.0	2.0	1.0	-1.9
1985	10.5	7.4	6.6	3.5

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 Table H-6. Honduran Government Expenditures and
 External Financing, 1970-1985

Year	Central Government Expenditures in Current Prices	External Financing Amount (thousands of lempiras)	Percentage of Central Government Expenditures
1970	230,189	31,335	13.6
1971	249,895	34,063	13.6
1972	263,991	43,327	16.4
1973	266,796	24,265	9.1
1974	315,572	40,189	12.7
1975	395,348	56,194	14.2
1976	483,303	77,199	16.0
1977	585,506	68,613	11.7
1978	769,915	128,122	16.6
1979	868,282	122,618	14.1
1980	1,022,963	85,771	8.4
1981	1,010,581	58,739	5.8
1982	1,329,112	250,403	18.8
1983	1,583,445	359,132	22.7
1984	1,941,411	558,198	28.8
1985	2,101,653		

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Public health in Honduras has received foreign financing since the early 1940s, but the amount of that assistance increased greatly in the early 1980s. Assistance from the Pan American Health Organization (PAHO) and the Inter-American Development Bank (IDB) from 1960 through 1985 was considerable. The amounts discussed below for PAHO disbursements include proportional allocations of PAHO's central administrative cost to Honduras; thus the values overstate direct expenditures in Honduras. PAHO data for 1984 and 1985 were not available.

PAHO provided help over the years in several public health areas, including malaria eradication, maternal and child health and family planning, epidemiology and laboratory services, program planning and general activities, equipment for local health centers and rural health training, medical care services, and basic training for health auxiliaries. In general, PAHO assistance rose fairly steadily over the period; beginning in 1978, annual assistance exceeded \$1 million.

Data available for IDB are for the full amounts approved in the year in which they were approved, which is reflected in the large annual variations in the reported amounts. Actual disbursements occurred in the approval year and in subsequent years. IDB devoted \$46.8 million, or 70 percent, of its total financing of \$66.7 million to water and sanitation projects. Tegucigalpa received \$7.8 million and San Pedro Sula \$1.9 million over the 25 years. Most of the water and sanitation funds (\$37.2 million) were directed to smaller cities and rural communities through SANAA. Through a large three-stage project, IDB financed SANAA's construction of water systems; \$4.3 million was approved in 1974, \$7.3 million in 1979, and \$24.0 million in 1985 for a total of \$35.3 million.

Other health projects financed by IDB include \$4.8 million for a hospital-medical school in Tegucigalpa in 1971 and \$13 million in 1975 to help the Ministry of Health construct and equip 243 rural health centers, 8 emergency hospital centers, and 2 regional hospitals.

A.I.D. assistance to Honduras for public health activities increased significantly in the early 1980s. Disbursements of A.I.D. funds for health projects in Honduras from 1967 to 1985 are given in Table H-7. The table does not include the \$1.05 million lent to SANAA in the 1960s for the construction of rural water systems. From low levels in the late 1960s, disbursements of A.I.D. funds were about half a million dollars per year in the 1970s, with the exception of 1977, when disbursements were only \$123,000. Between 1981 and 1985, expenditures were much larger, varying between \$3.4 million and \$7.8 million.

Two current projects, the disbursements for which began in 1981, largely account for this huge increase in A.I.D. financing of public health in Honduras. Health Sector I was originally budgeted for \$23.6 million, and by the end of U.S. fiscal year 1986, a total of \$19.4 million had been disbursed.

Similarly, the Rural Water Supply and Sanitation Systems project, budgeted for \$14.8 million, receives far greater funding than did such activities carried out through SCISP in the 1940s and 1950s or in the 1960s through the A.I.D. Rural Water Supplies

project. As shown in Table H-7, by the end of FY 1986, \$12.2 million had been disbursed.

It should also be noted that A.I.D.'s direct assistance to public health in the 1980s does not represent all of A.I.D.'s financial support to public health in Honduras. Beginning in 1983, A.I.D. also allocated Economic Support Fund (ESF) monies to the Government of Honduras to fund its counterpart obligations for the Health Sector I and Rural Water Supply and Sanitation Systems projects. As shown in Table H-8, 21.1 million lempiras were provided through ESF for 1983 through 1986. Another 4.5 million lempiras has been requested for 1987, which would bring the total to 25.6 million lempiras.

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 Table H-7. Disbursements of A.I.D. Health Project Funds in Honduras, FY 1967-1986 (thousands of dollars)

Proj. Name	'67	'68	'69	'70	'71	'72	'73	'74	'75	'76	Total
Maternal & Health (5220065)	46	29	89	394	471	533	644	570	460	210	3,446
Total	46	29	89	394	471	533	644	570	460	210	3,446
Proj. Name	'77	'78	'79	'80	'81	'82	'83	'84	'85	'86	Total
National Nutrition Planning (5220124)	91	227	151	158	1,470	108	13				2,218
Integrated Rural Health/Family Planning Services (5220130)	32	167	288	358	431						1,276
Health Planning (5220148)				138	261						399
Health Sector I (5220153)					102	2006	4928	2986	3928	5463	19413
Rural Water Supply and Sanitation Systems (5220166)					3336	1173	433	2343	2566	2359	12210
Family Planning/PVO (5220175)					300	129		11			440
Changing Maternal/Weaning Practicessa (9311010)							48	153	103	21	325
Family Planning Services (5220225)								346	420		766
Total	123	394	439	654	5900	3416	5422	5839	7017	7843	37047

{a} Disbursement data not available for 1979 to 1982; in those years, the project was administered by A.I.D./Washington, not USAID/Honduras.

Of total ESF disbursements to Honduras of 597 million lempiras, only 21.1 million lempiras, or 3.5 percent, was allotted for public health. Nevertheless, this amount is a significant portion of the Ministry of Health budget. Thus, if the United States were to stop funding public health, Honduras, in order to continue the same level of public health spending, would have to replace both the direct dollar assistance for certain project activities and the ESF disbursements that help fund Ministry of Health and SANAA budgets.

4. SUSTAINABILITY

This section concerning the financial aspects of sustainability has two parts. Section 4.1 presents observations on the relation between project financial characteristics and the continuation of outputs and benefits. Section 4.2 presents observations on larger issues that are external to the project.

4.1 Project Characteristics

Financial characteristics of seven A.I.D.-supported projects are presented in Table H-9. The seven projects are grouped in three categories: those with sustained outputs and benefits, those whose outputs and benefits were not sustained, and a current project. The placement of six of the projects in the first two categories is based on the extent to which outputs and benefits were sustained; the reader is referred to the pertinent case studies. It should be noted, however, that not all of the outputs and benefits of all the projects in the "sustained" group continued at their previous level; similarly, some project outputs and benefits continued to be provided in the projects in the "nonsustained" group. But each of the projects in the sustained group had outputs and benefits that were judged to have been sustained to a far greater extent than any of those in the nonsustained group.

Table H-8. U.S. Economic Support Fund Allocations for Health Projects in Honduras, 1983-1987 (in lempiras)

Year	Health Sector I (project no. 5220153)	Rural Water Supply and Sanitation Systems (project no. 5220166)	Total
Actual			
1983	1,092,700	2,970,300	4,063,000
1984	1,893,000	1,800,000	3,693,000
1985	2,432,000	3,890,000	6,322,000

1986	3,252,900	3,800,563	7,053,463
Subtotal	8,670,600	12,460,863	21,131,463
Requested			
1987	3,310,780	1,200,000	4,510,780
Total	11,981,380	13,660,863	25,642,243

As shown in Table H-9, three of the six projects were in the sustained group: Rural Water Supplies; the water and latrines component of the Ministry of Health's Rural Penetration Program, which was funded through A.I.D.'s Nutrition Planning project; and the training of auxiliary nurses component of the Integrated Rural Health project. These three projects were sustained both through the continuation of benefits from the direct activities of the project period and through the postproject replication of project activities. For example, the 62 water systems built in the 1960s generally continued to operate, and SANAA built other systems after the end of the A.I.D.-supported project of the 1960s. Similarly, trained auxiliary nurses continued to work and the training school (which had been funded by the project) continued to train nurses.

Defined in terms of both continued direct benefits and replication, only the auxiliary nurse program was sustained without continued foreign funding. The 62 SANAA water projects, which had been constructed with A.I.D. financing, were administered, operated, and maintained with Honduran funds (user fees and national funds), but the postproject construction of new systems depended heavily on funds from the Cooperative for American Relief Everywhere, Inc. (CARE), IDB, and (beginning again in 1981) A.I.D. Similarly, the water and latrines construction component (a replicating component) of the Rural Penetration Program was sustained in part with funding from the current A.I.D. Health Sector I project. An important observation of the present study is that replication of the activities of A.I.D.-supported health projects has been heavily dependent on continued foreign financing.

Table H-9. Financing Characteristics of Selected A.I.D. Health Projects in Honduras

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Thus, using both continuation of direct benefits and replication of direct outputs as the criteria, only one of the three sustained projects was sustained with national funds. Had foreign funding not been available for SANAA's construction program and the Ministry's water and latrine program, it is likely that they would have been funded with Honduran funds but at lower levels.

Table H-9 presents information describing six financial

characteristics of the projects during the project period; the last column describes selected postproject characteristics. The first four columns of financial characteristics relate to the funding of the project -- the Honduran and A.I.D. funding shares, the mix of assistance provided by A.I.D., and funding from other foreign donors and lenders. Contrary to what might have been expected, there was little correlation between these characteristics and the continuation of project outputs and benefits.

It could be hypothesized, for example, that projects with a low share of A.I.D. funding and a high Honduran share would be more likely to be sustained. Such was not the case. Within the sustained group, the auxiliary nurses program received less than half its funding from Honduran sources; only 25 percent of the capital costs of the rural water systems were funded by Honduras. Within the nonsustained group, there was wide variation in the Honduran contribution. Similarly, the extent of foreign assistance from donors and lenders other than A.I.D. does not correlate with the continuation of project outputs and benefits. Thus there does not appear to be a direct relationship between the continuation of project outputs and outcomes and the relative share of project funding undertaken by Honduras, A.I.D., or other foreign sources.

It could be hypothesized that there may be a particular mix in A.I.D.'s assistance between human resources (training) and material support that favors sustainability. The information in Table H-9 shows that the mix varies both for projects that were sustained and those that were not. Thus there is no evidence from the present study to support such a hypothesis.

Although the willingness of the Ministry to absorb salaries of project personnel is often seen as important for sustainability, the projects examined in the present study do not suggest that this is a guarantee of sustainability. The salaries of malaria workers, for example, were absorbed by the Ministry, but project outputs were cut sharply after A.I.D. funding ceased; half of the family planning personnel were integrated into the Ministry, but few of them were able to deliver family planning services.

The cost-recovery data in Table H-9 do not support the hypothesis that projects with good cost recovery tend to be better sustained than those with poor cost recovery. The degree of cost recovery varied within both the sustained and the nonsustained categories. The user fees that paid for the administration, operation, and maintenance of the SANAA water systems of the 1960s did contribute to their continued provision of water over the years; but such cost recovery may not have contributed to the subsequent construction of other water systems. For individual water projects, cost recovery cannot be used to predict sustainability.

One hypothesis that is supported, to some extent, is that projects that are more cost-effective tend to be sustained. In this analysis, data on project effectiveness are substituted for cost-effectiveness because available project reports did not include cost-effectiveness analyses and data were not available to permit such analyses to be carried out in the present study. A general judgment was made concerning how well project resources were used. In other words, if the project generally achieved its planned outcomes and outputs and, moreover, did not appear to significantly waste resources, it was categorized as "good" in

terms of effectiveness.

It is striking that three of the four projects judged "good" in terms of effectiveness were sustained. This result may reflect the notion, which appeals to common sense, that a success is more likely to be continued and a failure is more likely to be discontinued. Successful projects may be candidates for continued funding from Honduran and from international sources.

4.2 External Issues

There are four issues external to the projects that are especially important to examine for their relationship with the sustainability of health projects in Honduras: (1) funds available to the Ministry of Health, (2) the competition between hospital and nonhospital uses of Ministry funds, (3) external financing, and (4) cost recovery from beneficiaries. The following paragraphs address these issues.

4.2.1 Funds Available to the Ministry of Health

A project may have characteristics that would favor its continuation after the end of U.S. assistance, but adverse external factors may impede continuation with local funding, or positive external factors may encourage such continuation. Crucial here are the funds available to the Ministry of Health.

Trends in Ministry of Health budgets were discussed above in Section 2. Operating expense data for the Ministry for 1968 to 1985 are presented in Tables H-10 and H-11. The operating expense data in Table H-10 were prepared from line item Ministry of Health expenditures made available by the Ministry of Finance. The line items for capital transfers to national organizations (SANAA) and the construction of health facilities were deleted to attain the operating expenses shown in Table H-10. The line item for hospital-medical services permitted the breakdown between hospital and nonhospital expenses given in the table.

Although, obviously, had enough funds been spent on projects they could have been sustained, a general lack of Ministry of Health funds is not a major contributing factor to the failure to continue past A.I.D.-supported projects. There were no cutbacks in overall Ministry expenditures in the years after A.I.D. funding stopped that could be cited as a major cause of the failure to sustain outputs and benefits. For example, the years (early 1970s) following the end of U.S. assistance to malaria programs in 1969 were years of growth in Ministry expenditures (see Tables H-4, H-5, and H-10). The same is true for the years following the end of the A.I.D. Maternal and Child Health/Family Planning project in 1976. With Ministry budgets generally increasing, had the commitment been present, funds could have been found to sustain, to a greater extent than realized, the previous levels of project outputs and benefits.

4.2.2 Hospital and Nonhospital Competition for Funds

The health projects examined in the present study supported primary health care, not hospital activities. It could be hypothesized that some projects were not sustained because of a failure of primary health care activities to compete successfully with hospital-based activities for funds within the Ministry budget. But this was not the case.

The data on nonhospital operating expenses in Tables H-10 and H-11 were calculated by subtracting hospital operating expenses (which were already disaggregated) from total operating expenses. Thus, nonhospital expenses include administrative expenses of the Ministry as well as the costs of operating a variety of primary health care programs. Data were not available to permit the appropriate allocation of administrative expense to hospital and nonhospital expenses. Thus, hospital operating expenses may be understated by the amount of their share of central administrative costs; but this understatement is probably consistent over time. Thus the hospital operating expenses' share in total operating expenses over time probably closely represents the trend in all direct and indirect hospital-related operating expenses. Similarly, the trend in nonhospital operating expenses is a good proxy for the trend in primary health care operating costs.

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 Table H-10. Honduran Ministry of Health Operating Expenses,
 Hospital and Nonhospital Costs, 1968-1985
 (in current and constant lempiras)

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 Table H-11. Honduran Ministry of Health, Operating Expenses in
 Current and Constant Lempiras and Annual Compound Growth Rates,
 Selected Years, 1968-1985

Operating Expenses	1968	1972	1978	1981	1985
Current Lempiras					
Total	12959500	19722900	150629700	90862800	120038800
Hospital	6965800	12157700	29734000	41172800	61345200
Nonhospital	5993700	7615200	22895700	41172800	58693600
Constant Lempiras					
Total	12318916	16700084	25969873	35861022	38589643
Hospital	6621483	10268328	14672100	19611262	19721035
Nonhospital	5697433	6431757	11297773	16249760	18868608
Percentage					
Total	100.0	100.0	100.0	100.0	100.0
Hospital	53.8	61.5	56.5	54.7	51.1
Nonhospital	46.2	38.5	43.5	45.3	48.9
Operating Expenses, '68-'72 '72-'78 '78-'81 '81-'85 '68-'85 Compound Annual Growth Rates					
Current Lempiras					
Total	11.1	17.7	20.0	7.2	14.0
Hospital	14.9	16.1	18.7	5.4	13.7
Nonhospital	6.2	20.1	21.6	9.3	14.4
Constant Lempiras					
Total	7.9	7.6	11.4	1.9	6.9
Hospital	11.6	6.1	10.2	0.1	6.6

Nonhospital	3.1	9.8	12.9	3.8	7.3
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Only in the period 1968-1972 did the growth in hospital operating expenses outstrip the growth in nonhospital operating expenses (Table H-11). In the era of Health Minister Aguilar Paz (1972-1978), the subsequent military government (approximately 1978-1981), and the following elected government (approximately 1981-1985), primary health care operating expenditures grew faster than hospital operating costs.

Between 1968 and 1972, hospital costs as a percentage of total operating costs rose from 53.8 percent to 61.5 percent. By 1978, at the end of the era of Health Minister Aguilar Paz, they had fallen to 56.5 percent. This decline continued, reaching 54.7 percent in 1981 and 51.1 percent in 1985. The continuation of the decline is especially noteworthy in that the Hospital School (Hospital Escuela) in Tegucigalpa opened in 1980.

With respect to the three projects identified in Table H-9 as nonsustained, only in the case of the malaria program is there any evidence that competition for funds may have been involved. A.I.D. funding ceased in 1969. In 1970, nonhospital operating costs fell by 12.7 percent; in 1971 they only partially rebounded by rising 7.0 percent (Table H-10). In 1972 and 1973 primary health care costs grew faster than did hospital costs. But for the other two nonsustained projects, for which A.I.D. funding ended in the 1970s and 1980s, this explanation does not hold. Their outputs and outcomes were not sustained although primary health care expenditures were growing faster than hospital expenditures.

In the future, there may be increased competition between primary health care and hospitals. The doubling of physicians' salaries in 1986 will affect hospital operating costs relatively more than those of primary health care programs. In 1987 and 1988 three hospitals are expected to begin operation. Over the next 5 years, the Ministry of Health has a commitment to IDB to incur \$19 million (38 million lempiras) in costs for these three hospitals, mostly in operating expenses.

In conclusion, the failure to sustain projects after the end of A.I.D. funding is not attributable to unsuccessful competition of primary health care activities over hospitals for funding. On the contrary, in the postproject years when A.I.D. funding was not replaced by Honduran funding on most of the nonsustained projects, primary health care operations funding was growing faster than that of hospitals. It should be noted here, however, that the past absence of such competition may well be due to the fact that external financing has been heavily oriented toward primary health care (see Section 4.2.3). In the future, primary health care projects may face increased competition from hospitals for operating funds as more of the hospitals now under construction begin operations.

4.2.3 External Financing

Previous discussion has made clear the dependence of Honduras on external financing both in general and for health project funding. This dependence augurs ill for the capacity of

Honduras to continue health projects should the currently large foreign assistance flows cease.

For the sustained projects (Table H-9), foreign financing played an important role in the replication of project outputs. CARE and IDB funded the construction of rural water systems in the 1970s after the initial A.I.D. project ended. The large funding of Health Sector I helped the Ministry of Health continue the water and latrine components of its Rural Penetration Program. With the end of A.I.D. assistance in 1969 and with no replacement funds forthcoming from other international sources, the malaria program was cut back severely in the early 1970s.

External financing may have had a differential impact on the funding of hospital-based care and primary health care. Unfortunately, the available data did not permit this possibility to be investigated rigorously. It is likely, however, that in the early 1980s, funds from international organizations -- such as the large Health Sector I disbursements -- have reduced the need for Honduran funds to be spent for primary health care. A consequence would be that more Honduran funds could be directed to hospital care. In other words, without the external funds directed to primary health care it is likely that primary health care projects would have faced strong competition for operating funds from hospitals.

In conclusion, the availability or unavailability of foreign funds has been a very important factor in the sustainability of A.I.D. projects. When available, these funds have enabled projects to continue, and when they have not been available, projects have been unable to continue to produce outputs and benefits. At present, the Ministry of Health is very dependent on foreign funding, especially from A.I.D. A.I.D. funding is currently being provided at a very high level, reflecting the current political priority of Honduras. Should U.S. priorities change and funding be reduced, it is doubtful that Honduras would be able to maintain its current level of public health expenditures.

4.2.4 Cost Recovery From Beneficiaries

The previous discussion of cost recovery under the projects indicated that cost recovery has not been a significant factor affecting the continuation of A.I.D.-supported primary health care projects (Table H-9). The notable exception is the Rural Water Supplies project, for which user fees contributed significantly to postproject administration, operation, and maintenance costs. With the encouragement of A.I.D., the Ministry of Health in the 1980s has taken steps to increase revenues collected from hospital patients and further progress in this regard is anticipated.

The currently limited level of cost recovery from the beneficiaries of public health programs does not mean, however, that cost recovery is not potentially an important positive factor for sustainability. For selected services, water and sewerage being outstanding examples, the potential for cost recovery is much greater than is being captured. Significant additional revenues from beneficiaries would reduce pressures on central Government funds and strengthen the Ministry of Health's ability to continue programs after A.I.D. assistance ends.

APPENDIX I

PERSONS INTERVIEWED

1. Ramon Alcerro, former Vice-Minister of Health, 1955 (Honduran sustainability study team member)
2. Rigoberto Alvarado, former Vice-Minister of Health, 1972-1978 (Honduran sustainability study team member)
3. Alberto Guzman, former Director of Division of Epidemiology and Director General of Ministry of Health, 1980-1982 (Honduran sustainability study team member)
4. Enrique Aguilar Paz, former Minister of Health, 1972-1978
5. Juan de Dios Paredes, Management Sciences for Health, former Minister of Health, 1984-1985
6. Manuel Octavio Suazo, former Vice-Minister of Health, 1978-1980.
7. Rodrigo Barahona, former Director General of Public Health, Ministry of Health, 1955-?
8. Carlos Godoy, former Director General of Health Services, Ministry of Health, 1972-1978
9. Gustavo Corrales, Management Sciences for Health, former Director General of Health Services, Ministry of Health, 1982-1984
10. Yanuario Garcia, Director General of Health Services, Ministry of Health, 1986-present
11. Anibal Pinto, USAID/Honduras, Executive Unit of Health Sector I, former Subdirector General, Ministry of Health, 1972-1978
12. Emile Falk, former Director of the Inter-American Cooperative Public Health Service (SCISP), 1958-1965
13. Benjamin Rivera, Director of Division of Environmental Sanitation, Ministry of Health
14. Arnalda Estrada, Director of Human Resources Division, former Director of Maternal and Child Health, Ministry of Health
15. Jorge Haddad, Pan American Health Organization (PAHO), former Director of Human Resources, Ministry of Health, 1972-1978
16. Carlos Pineda, Director of Division of Vector Control, Ministry of Health
17. Hilton Troches, Honduran Social Security Institute, former Director of Planning, Ministry of Health, 1972-1976
18. Carlos Pineda, former health planner, Ministry of

Health, 1960s

19. Gomez Padilla, former Director of Department of Nutrition, Ministry of Health, mid-1960s
20. Danilo Velazquez, former Director of Family Planning Program, 1965-1974
21. Rodolfo Magana, Management Sciences for Health, former Director of Administrative Development Unit (UNIDESA) and of IDB Project Unit (PRONASSA), Ministry of Health, 1973-1984
22. Manuel Sandoval, former Director of Mobile Health Units Program, Ministry of Health, 1960s
23. Humberto Pineda Santos, former Director of Health, Region 3, Ministry of Health, 1960s-1980
24. Juan Manuel Fuentes, Subdirector of Region 3, Ministry of Health
25. Olimpia Lainez, former Director of Nursing, Region 7, Ministry of Health
26. Digna de Reyes Flores, Director of Maternal and Child Health, Region 3, Ministry of Health
27. Alfonsina Montoya, former Instructor at Tegucigalpa School of Auxiliary Nursing, Ministry of Health
28. Edy Orlando Moya, health promoter, Health Area Progreso, Ministry of Health
29. Carmen Hernandez, Auxiliary Nurse, CESAR (health post) de Toyos, Health Area Progreso, Ministry of Health
30. Various auxiliary nurses, health promoters, and malaria workers in Region 3
31. Emirto Randaes, SAPLAN and CONSUPLANE
32. Roberta Palma, SAPLAN and CONSUPLANE
33. Ruben Clair Andino, former Director of National Water and Sanitation Service (SANAA), former official of CONSUPLANE
34. Fausto Gomez, former Chief Engineer, SCISP and SANAA, 1950s and 1960s
35. Manuel Flores, Chief of Planning Department, SANAA
36. Escoto, Sanitary Engineer, SANAA
37. Carlos Alirio Cruz, former National Service for Malaria Eradication (SNEM) official
38. Eduardo Aquino, PAHO Country Representative
39. Raul Penna, former PAHO Country Representative in Honduras
40. Antonio Casas, UNICEF Country Representative

41. Luby Casares, United Nations Development Program (UNDP) Honduras
42. Ricardo Agurica, United Nations Fund for Population Activities/Honduras
43. Orlando Torrealba, the Inter-American Development Bank (IDB), Honduras
44. Jeff Vaughn, IDB, Evaluation Division
45. Arnulfo Noguera, Nutrition Institute of Central America and Panama (INCAP)
46. Tim Campbell, IDB Consultant, Rural Water Project Evaluation
47. Maria Teresa Menchu, INCAP
48. Mireya Palmieri, INCAP
49. Julia Elvir, INCAP, Honduras
50. Tom Park, USAID/Honduras, Population, Health, Nutrition Officer
51. Barry Smith, USAID/Honduras, Health Officer
52. Anita Siegel, USAID/Honduras, Family Planning Officer
53. Juan Castillo, USAID/Honduras, Food for Peace Officer
54. Jeff Stivers, USAID/Honduras, malaria adviser
55. Elizabeth Burleigh, USAID/Guatemala
56. Clifford Pease, former Director, Office of Health, A.I.D. Bureau for Science and Technology
57. Peter Cross, Chief of Party, Management Sciences for Health
58. Carlos Tabon, Management Sciences for Health
59. John Holley, Management Sciences for Health
60. David McCarthy, Management Sciences for Health
61. Marty Schwartz, CARE/Honduras
62. Victor Menza, Honduran political scientist
63. Mark Rosenberg, Florida International University
64. Philip Sheperd, Florida International University

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