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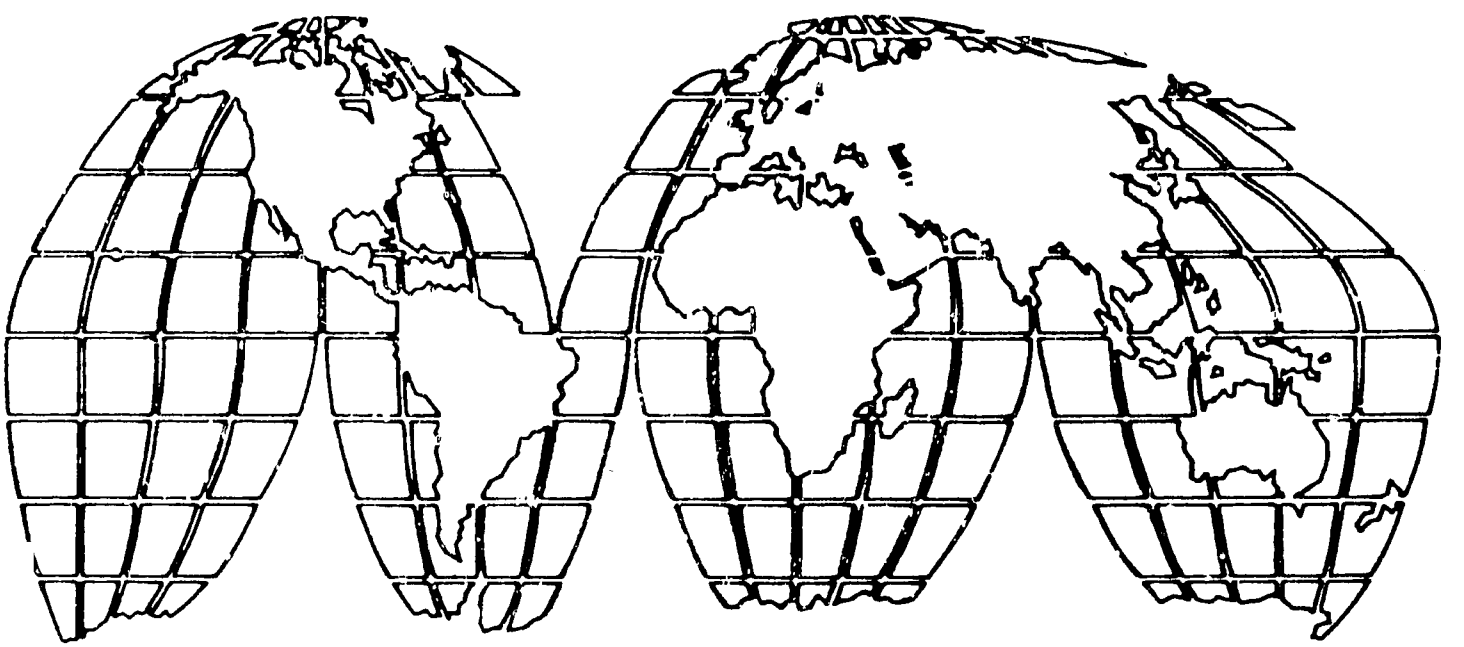
SUSTAINABILITY OF U.S. SUPPORTED HEALTH PROGRAMS IN GUATEMALA

DRAFT: JANUARY 1988



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SUSTAINABILITY OF U.S. GOVERNMENT SUPPORTED HEALTH PROJECTS IN GUATEMALA 1942-1987

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December 1987

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ACKNOWLEDGEMENTS

This project was very much the collective effort of many people. Each author participated in the development of our general methodology and framework for analysis and each contributed individually to the development of separate cases of projects that formed the basis for this analysis.

The final report and annexes were written by individual authors, although they drew on information of others and responded to many helpful comments and corrections on their drafts. The executive summary, final report, and the nutrition case were written by Thomas Bossert. Eugene Boostrom was responsible for writing the case study on health services and the annex on methodology. R.B. Greene wrote the case study on malaria and the annex on economics and finance. The water and sanitation case was prepared by J. Ellis Turner. Terry McCoy and Marcia Townsend collaborated on the family planning case.

Other documents that were prepared for this project and formed the basis for some of the analysis in the reports and annexes were written by the other members of this evaluation team. Orlando Aguilar, and Eusebio Del Cid, each of whom has been Director General of Health Services in previous administrations, prepared a history of the Ministry of Health and Jaime Solorzano, the Director of Health Planning of the Ministry of Health, prepared an epidemiological study of health trends. Sonia de Massey designed, implemented and prepared a report on a special survey of Tecnicos en Salud Rural that was used in the case on health services. Luis Porras collected data for epidemiological, economic and financial analyses.

Lois Godiksen participated in all aspects of design and development of the project, assisting in both the practical administration of the project and workshop and in the analysis of the findings.

Reynaldo Grueso helped present the findings of the team at our workshop with many past and present officials of Guatemala's health sector.

We received considerable back up and administrative support from Bruce Newman, and his staff at Data Pro -- Sandra Lopez and Lincoln _____. Susan Cowan provided bibliograhpic support and Maria ---- and ------ did the translations for the workshop.

The USAID Mission was particularily supportive and interested in this project. John Massey, the Population Officer, and Liliana Ayalde, the Human Resource Officer were enthuiastic informants who helped facilitate access to key people in Guatemala, provided knowledgable interpretations, participated in team meetings and the workshop and encouraged us in many other ways. Jorge Chang, the Health Officer, provided crucial access to other informants early in the study. The

Mission Director, Anthony Cauterucci, and the Deputy Mission Director, Paul White, and Dick Burke, the Program Officer, and Thomas Kellerman, the Evaluation Officer, expressed continuing interest and support throughout the project.

We must also thank the many Guatemalan and U.S. officials -- past and present -- who spent so much time in interviews with members of the team. We hope that this report can help them develop projects that are more sustainable.

LIST OF ACRONYMS

ADP
Agua del Pueblo
The People's Consultants, a water and sanitation PVO

AGES
Asociacion Guatemalteca de Educacion Sexual
Guatemalan Association for Family Life Education

AID
Agency for International Development
Agencia para el Desarrollo Internacional

AIDS
Acquired Immuno-Deficiency Syndrome
S ndrome Inmuno-Deficiencia Adquerida

APROFAM
Asociacion Pro-Bienestar de la Familia de Gutemala
Guatemalan Association for Family Welfare

ASECSA
Asociacion de Entidades de Desarrollo y Servicios no-Gubermentales
Association of Development and Non-Governmental Service Organizations

BCIE
Banco Centroamericano de Integraci n Ecom mica
Central American Bank for Economic Integration

BID
Banco Interamericano de Desarrollo
Interamerican Development Bank

CAPSVO

CCYP
Contraceptive Couple-years of Protection
A os de Protecci n Anticonceptiva de una Pareja

CDIE/PPC
Center for Development Information and Evaluation/Bureau for Program and Policy Coordination
Centro de Informaci n y Evaluaci n/Oficina de Coordinacion de Programas y Pol ticas

CIDA
Canadian International Development Agency
Agencia Canadiense para el Desarrollo Internacional

C'

COPECAS
Comité Permanente de Cooperaci n de Agua Potable y Saneamiento
Permanent Coordinating Committee for Potable Water and Sanitation

CRS
Commercial Retail Sales
Venta Comercial al Menor

CRS
Catholic Relief Service

DGSS
Direccion General de Servicios de Salud
General Directorate for Health Services

DIMIF
Division de Salud Materno-Infantil
Maternal-child Health Division

DSA
Division de Saneamiento Ambiental
Department of Environmental Sanitation

DSM
Departamento de Saneamiento del Medio
Environmental Sanitation Department

DSP
Departamento de Salud P blica
Public Health Department

EMPAGUA
Empresa Municipal de Agua
Municipal Water Company

ERIS
Escuela Nacional de Ingenier a Sanitaria
National Sanitation Engineering School

GNP
Gross National Product
Producto Nacional Bruto

GOG
Government of Guatemala
Gobierno de Guatemala

HSD
Health Service Development
Desarrollo de Servicios de Salud

ICA
International Cooperation Agency
Agencia de Cooperacion Internacional

IDB
Interamerican Development Bank
Banço Interamericano de Desarrollo

IGSS
Instituto Guatemalteco de Seguridad Social
Guatemalan Social Security Institute

INCAP
Instituto de Nutricion de Centroamérica y Panam
Institute of Nutrition of Central America and Panama

INDAPS
Instituto Nacional de Adiestramiento de Personal de Salud
National Health Personnel Training Institute

INFOM
Instituto de Fomento Municipal
National Institute for Municipal Development

IPPF
International Planned Parenthood Federation
Federacion Internacional de Planificaci n de la Paternidad

IPROFASA
Importadora de Productos Farmacéuticos, S.A.
Family Planning CRS

ROCAP
Regional Office for Central American Programs
Oficina Regional para Programas Centroamericanos

MEP
Malaria Erradication Programs
Programas de Erradicaci n de la Malaria

MOH
Ministry of Health
Ministerio de Salud P blica y Asistencia Social

MSPYAS
Ministerio de Salud P blica y Asistencia Social
Ministry of Public Health and Social Services

OMS
Organizacion Mundial de la Salud
World Health Organization

OPS
Organizacion Panamericana de Salud
Pan American Health Organization

ORT
Oral Rehydration Therapy
Terapia de Rehidrataci n Oral

OSP
Oficina Sanitaria Panamericana
Pan American Sanitary Bureau

PAHO
Pan American Health Organization
Organizacion Panamericana de la Salud

PBI
Producto Bruto Interno
Gross National Product

PEM
Programas de Erradicacion de la Malaria
Malaria Erradication Programs

PF
Planificacion Familiar
Family Planning

PHC
Primary Health Care

PHD
Public Health Department
Departamento de Salud P blica

PIPOM
Population Information for Policy Makers
Informacion de Poblaci n para Formadores de Pol tica

PNB
Producto Nacional Bruto
Gross National Product

PRINAPS
Proyecto de Investigacion de Adiestramiento de Promotores Rurales de Salud
Rural Health Promotor Training Research Project

PVO
Private and Voluntary Organizations
Organizaciones Voluntarias y Privadas

SCISP
Servicio Cooperativo Interamericano de Salud P blica
Interamerican Cooperative Service for Public Health

SESP
Servicio Especial de Salud P blica
Special Public Health Service

SIDA
Syrdrome Inmuno-Deficiencia Adquerida
Acquired Immuno-Deficiency Syndrome

SINAPS
Sistema Integrado de Nutricion y Atenci n Primaria de Salud
Integrated System of Nutrition and Primary Health Care

SNEM
Servicio Nacional para la Erradicacion de la Malaria
National Service for the Erradication of Malaria

TA
Technical Assistance
Asistencia Técnica

TRO
Terapia de Rehidratacion Oral
Oral Rehydration Therapy

4SR
Técnico en Salud Rural
Rural Health Technician

UNEPAR
Unidad Ejecutora para Acueductos Rurales
Rural Water System Implementing Agency

UNFPA
United Nations Fund for Population Activities
Fondo de las Naciones Unidas para Actividades de Poblacion

UNICEF
United Nations Children's Fund
Fondo de las Naciones Unidas para la Infancia

VIP
Ventilated Improved Pit Latrine
Letrina Ventilada Mejorada

WHO
World Health Organization
Organizaci n Mundial de la Salud

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Project Characteristics

Project Characteristics which were important for sustainability were:

1. Project Effectiveness: Projects which had a reputation for effectively and efficiently achieving appropriate health goals were more likely to be sustained.

2. Institutional and Managerial Characteristics: Vertically organized projects were less likely to be sustained than those which are integrated into the normal administrative structure of the implementing agency. Projects with stable and highly qualified management both within the implementing agency and from AID were more likely to be sustained.

3. Financial Characteristics: Projects which provide for progressive absorption of recurrent project costs by the national budget were more likely to be sustained.

4. Content Aspects: Projects which provided significant training at either the professional or para-professional levels were likely to be sustained -- especially if there are good prospects of employment for the graduates. Projects with enduring technical assistance were also more likely to be sustained.

5. Project Negotiation: Projects which were negotiated in a mutually respectful process in which a consensus over goals, activities and implementing plans is established were more likely to be sustained than those which were not negotiated in auch a process and which appeared to be imposed by AID.

The other characteristics of project financing (foreign exchange demand, substitution demand, cost recovery and cost effectiveness); project content (design, appropriate technology) and community participation did not appear to be as important for sustainability as were the other project characteristics.

Policy Implications

Central conclusions of this study tend to confirm that four areas are of particular importance in the design and implementation of sustainable projects:

1. Respect national priorities and national involvement in project design.

2. Enhance the administrative effectiveness and capacity of the implementing agencies and integrate project activities into those institutions.

SUSTAINABILITY OF U.S. GOVERNMENT SUPPORTED HEALTH PROJECTS IN GUATEMALA:

EXECUTIVE SUMMARY

This evaluation focuses on the sustainability of U.S. government funded health projects in Guatemala since the initiation of U.S. involvement in 1942. The central objective of the evaluation is to identify the characteristics of projects and the contexts in which they occurred that were likely to have resulted in the continuation of project activities and benefits after project funding ceased.

There is clear evidence that significant activities and benefits from the U.S. supported health projects in Guatemala over the last forty-five years have been sustained. This evaluation has shown that some contextual factors and project characteristics were related to project sustainability.

Contextual Factors

Contextual factors which appear to be most important for project sustainability were:

1. National Commitment: Projects which pursued goals which were priority goals of the national government and for which there was general consensus among significant groups in the health sector were likely to be sustained.

2. Characteristics of Implementing Institution: Implementing institutions which were fragmented, had low skill levels, and/or had conflicting organizational goals, were less likely to implement sustainable projects.

3. Socio-cultural Factors: Ethnic differences between ladino and indian communities appear to have limited the sustainability of some projects -- latrines and family planning. Projects such as the TSRs which took cultural differences into account were more likely to be sustained.

The other contextual factors we examined (natural disasters, political factors, bilateral relations, economic changes, private sector and donor coordination) either were not sufficiently related to sustainability or did not have sufficient variation to provide evidence of their impact on sustainability.

3. Design project financing to encourage absorption of recurrent project costs during the life of the project.

4. Design and implement projects to assure that they will be viewed as effectively achieving their goals and as making efficient use of resources.

HEALTH PROJECTS IN GUATEMALA:

FINAL REPORT

December 1987

This evaluation focuses on the sustainability of U.S. government funded health projects in Guatemala since the initiation of U.S. involvement in 1942. The central objective of the evaluation is to identify the characteristics of projects and the contexts in which they occurred that were likely to have resulted in the continuation of project activities and benefits after project funding ceased.

As one of a series of historical case studies of sustainability being implemented by PPC/CDIE, this evaluation follows a prior study of sustainability of health projects in Honduras, completed in January 1987. The methodology is based on several state-of-the-art reports and other recent evaluations.

Guatemala was chosen for this series because of the long history of U.S. involvement in the health sector, the range of different types of health projects implemented, and evidence of both sustained and unsustained project activities. Health sector projects in this study, included health, population and nutrition projects. In Guatemala, there have been 19 major project initiatives (under 27 separate project numbers) since the initiation of U.S. government funding in 1942. Projects which have been completed by the time of this evaluation have totaled over $25 million and current projects will provide an additional $30 million. These figures do not include PL480 support which has contributed much higher sums over several decades and is continuing.

These projects brought significant benefits to Guatemala, whether or not they have been sustained after U.S. funding was stopped. Thousands of health workers -- particularly primary health paraprofessionals -- were trained and continue to provide health, population and nutrition services. Institutions, in particular those which provide water and sanitation and malaria control, were initiated by U.S. funding and have continued to bring benefits in these areas. Family planning services, which depend on AID funding, have been effective in increasing contraceptive utilization -- especially private sector services in urban areas. A program to support the construction of a major hospital in Guatemala City, has continued to provide services for almost forty years.

No attempt was made here to determine the overall health impact of these services -- a difficult task, even for specific disease related interventions. Guatemala's general health levels have been improving throughout the period of U.S. funding; however, Guatemala's health levels remain among the lowest in Central America. (Table 1) In any case, it is not possible to show a clear relationship between U.S. funded projects and the general health levels.

Table 1

Infant Mortality Rates per 1,000 Live Births
Selected Latin American Countries
1960 - 1985

Country	1960-1964	1965-1969	1970-1974	1975-1979	1980-1985
Low Income Countries:					
Guatemala	128.1	115.3	90.2	79.0	67.7
Honduras	136.8	124.0	110.7	95.4	81.5
Nicaragua	136.4	122.2	108.9	96.5	84.5
Ecuador	132.3	114.5	100.1	86.0	77.2
Peru	152.2	132.7	106.5	93.5	81.9
Middle Income Countries:					
Costa Rica	70.6	60.3	50.9	29.3	25.7
Colombia	84.5	74.2	66.9	59.4	53.3
Venezuela	76.9	64.9	52.4	44.8	38.6

SOURCE: Programa de Salud Materno Infantil de la OPS. Mortality and Human Policy. Rome. CELADE, abril de 1983. (IESA/ICP. 1984/ECIV/12).

Project activities fall into five major areas which were examined as historical case studies in this evaluation (see Table 2 for complete historical list with funding levels): health services, water and sanitation, malaria, family planning and nutrition.

1. Health Services

U.S. government support for the health sector in Guatemala began in the 1940's. Along with the long-term, and multi-activity program of the Servicio Cooperativo Interamericana en Salud Publica (SCISP) which provided administrative and operational programs that strengthened the MOH in several health areas in the 1940's and 1950's, the U.S. government provided support for the construction and equipping of the Roosevelt Hospital in Guatemala City. Although U.S. funds only amounted to 12% of the total cost, that assistance played a decisive role int the technical design of the hospital and in its organization and operational systems. SCISP administrative and technical assistance continued to help strengthen the organization and operational systems of both the hospital and the MOH until the 1960's, through in-country and overseas training and the direct participation of U.S. advisors in their operations. The projects met a strong felt need by the Guatemalan government, which was able to provide a significant amount of its own national funding for the MOH and the hospital.

Between 1964 and 1969, a mobile rural health units program was developed. The program, a U.S. initiative throughout the Central American region, provided vehicles, training and technical assistance for teams of physicians, nurses and sanitary inspectors to provide periodic service in many rural communities. The program turned out to have low effectiveness and high costs, and therefore was suspended after AID funding was terminated. However, it did provide community constructed health posts to which the MOH later assigned permanent auxiliary nurses.

The MOH's Program to Strengthen Rural Health Services, with support from AID loans from 1971 to 1980, improved the physical infrastructure for rural health. The most significant aspect of this program was the creation of a new type of health worker, the Rural Health Technician (Tecnico en Salud Rural --TSR). This unique type of health worker was conceived of as a polyvalent mid-level worker who would work as change agent in rural communities. Trained in a two year program at a school in a rural eastern department, the TSRs have been effective in organizing communities to become involved in water and sanitation, nutrition, immunizations and other preventive health programs. By 1980 when AID funding stopped, almost 400 TSRs had been trained. The effectiveness of TSRs has been limited by the lack of logistical and supervisory support that should be provided by the rest of the health delivery system; however, it

is particularly effective in some regions. This program continues with MOH funding, although the training school suspended classes for several years in the 1980's.

In the 1980's, AID supported a series of pilot projects designed to improve primary health care delivery in specific regions of the country. Beginning in 1979 with an operations research project designed to develop training materials, implement and evaluate several alternative primary health care methodologies, the SINAPS project was implemented in the several eastern departments by the MOH and the regional Nutrition Institute for Central America and Panama (INCAP). This project was followed by three others in the highlands: PRINAPS, CAPSVO, and the Integrated Communities Project. During the life of the project both SINAPS and PRINAPS were quite effective in demonstrating appropriate techniques of training, providing services and supervision. Many of those trained continue to provide services. However, the government failed to continue the project activities and the materials developed from the projects have not yet been incorporated into the general MOH programs. The Integrated Communities Project -- originally designed as a combined primary health care and water and sanitation project -- was not fully implemented and was plagued with problems during the first few years -- in part because of changes in government. The health services component of this project was abandoned and it currently only provides support for water and sanitation activities.

Currently AID is funding an Immunization/ORT/Child Survival project. This project has not been evaluated since it is on-going.

2. Water and Sanitation

The U.S. government has provided significant levels of funding for water and sanitation projects since 1955, when SCISP program (1955-66) began funding the construction for municipal water supply and sewerage projects and for human resource development. During the SCISP era over $3 million was provided for major construction projects, involving supervision, technical assistance and on-the-job training. The program also funded two year scholarships for selected personnel to enter masters programs in civil engineering at U.S. universities.

During the SCISP period a series of rural projects were also implemented. These projects involved both gravity and pumped water supplies and latrines. It is unlikely that these projects have continued to provide clean water and it is clear that the latrine program failed. This program was one of the few water and sanitation programs whose immediate benefits were not sustained.

Along with other donors the U.S. government also supported the founding of the Regional Sanitary Engineering School (Escuela Regional de Ingeneria Sanitaria -- ERIS) in 1966.

In the 1970's, the U.S. shifted its support to the National Institute for Municipal Development (Instituto Nacional de Fomento de Obras Municipales -- INFOM). INFOM is responsible for providing technical assistance and designs for water supply and sewerage systems in the 329 urban centers outside Guatemala City. AID supported the construction of new urban systems and provided funds for rehabilitation of systems damaged by the earthquake of 1976.

In the late 1970's and early 1980's, AID funded five PVO water and sanitation projects managed by CARE and Agua del Pueblo. Two of these projects are still ongoing.

With the exception of the rural projects of the SCISP period, water and sanitation projects tended to be sustained -- using national funds for maintaining existing systems and external funding from other donors for creating new systems.

3. Malaria

Along with PAHO and UNICEF, the U.S. government, through SCISP, joined with the Guatemalan government and other regional governments in 1956 to begin a program to eradicate malaria. SCISP assisted with the formation of the National Service for the Eradication of Malaria (Servicio Nacional para Erradicacion de la Malaria -- SNEM) and later AID provided funds throughout the 1960's to support SNEM's program. The program emphasized massive spraying and treatment by hundreds of highly motivated volunteers.

As elsewhere, however, resistance to pesticides and the failure to coordinate regional efforts made it clear by 1970 that goal to eradicate malaria could not be reached and both AID and UNICEF terminated their support. The Guatemalan government then made up for the loss of foreign funding and SNEM continued its treatment and preventive programs, slowly shifting its strategy from the objective of eradication to one of control.

These efforts were successful for over five years until 1976. The earthquake disruption and the failure of the government to provide foreign exchange for pesticides left the country unprotected for one spraying season, after which malaria rates soared and only recently have been declining.

4. Family Planning

AID support for family planning began in 1967 and has continued with four major projects, the last of which is to be extended through 1991. Through these projects, AID has supported programs of the Ministry of Health, the private Family Planning Association (Asociacion Pro-Bienestar de la Family de Guatemala --APROFAM), and more recently, a private Association for Family Life Education (AGES) and a for-profit private sector commercial retail sales program (IPROFASA). While AID funding for family planning activities in the private sector has been continuous, support for government family planning efforts was terminated in 1975 and no major family planning services were offered by the government again until 1982. Only after 1983 have current on-going AID projects provided support for government programs again. Until recently most of AID support for government provided services came through APROFAM which provided logistical support for the Ministry of Health facilities.

This experience has given considerable evidence that family planning programs are likely to be continued only with AID support. The private sector organizations, with the possible exception of IPROFASA, could not survive without AID funds. The government closed down the AID program in the Ministry of Health in 1975, clearly demonstrating the failure of such programs to be sustained without AID support.

5. Nutrition

AID support for nutrition projects in Guatemala was channeled through the regional Nutrition Institute of Central America and Panama (INCAP). These projects involved fortification of sugar with vitamin A and the use of a fortified corn hybrid, a nutrition planning program, and support for the pilot primary health care program, SINAPS, discussed above. Currently AID is funding two projects for INCAP to provide technical assistance in Child Survival and Food Assistance. Again, since these current projects are on-going, they could not be included in the study.

The fortification projects did have significant impact on nutrition levels in Guatemala. The sugar fortification program was suspended after AID funding had been terminated, however, it has recently been re-instituted. The suspension was due to private producers' resistance to the absorbing the cost of vitamin A supplements and the government's temporary refusal to provide foreign exchange for importing the supplement.

The nutrition planning programs did create a nutrition planning unit in the Planning Commission(SEGEPLAN) which produced officially approved nutrition plans; however, these plans were never implemented.

Table 1

U.S. GOVERNMENT SUPPORTED HEALTH PROJECTS: GUATEMALA

HEALTH SERVICES DEVELOPMENT

SCISP Programs(1952-65)	520-0002/0067/0129/0130	$2,909,000
Roosevelt Hospital(1954-60)	520-0131	87,000
Rural Mobile Units(1964-69)	520-0163	330,000
Rural Health/TSRs(1971-80)	520-0206/0218/0230	5,507,000
SINAPS/PRINAPS/CAPSVO(1979-82)	932-0631/0632	1,479,000
Current Child Survival & Communities(1980-87)	520-0251/0339	20,474,000

WATER AND SANITATION

Urban SCISP(1955-66)	20-50-900/906	3,144,000
Rural SCISP(1952-66)	520-0029/0085/0132 20-50-99/20-99-091	3,694,000
ERIS(1966-71)	300,000	
Urban INFOM(1972-81)	520-017/027	4,800,000
First PVO (1972-77) 291,000	520-0231/0244	
PVO Rural I (1984-86) 500,000	520-0298	
Current Rural (1984-88)	520-0298/0335/0336/0251	10,500,000

MALARIA

Malaria Eradication(1958-69)	520-00095		5,091,000

FAMILY PLANNING

Family Planning (1967-87)	520-0189/0237/0263/0288	22,231,000	

NUTRITION-INCAP

Fortification Projects (1967-80)	various	1,000,000	
Nutrition Planning (1976-81)	596-0065		3,500,000
Other INCAP Projects (1971-86)	various	8,500,000	
Current Projects (1984-90)	596-0115/0116	14,600,000	

FRAMEWORK FOR ANALYSIS AND METHODOLOGY

The framework for analysis is a systems analysis which identifies a central system around each AID project. The system examines: 1) the conditions in the health sector before the project began; 2) the goals and objectives of the project; 3) the inputs in funds, materials and technical assistance provided by the project; 4) concurrent activities by the national government and other international donors; 5) the implementation process of the AID project; 6) project outputs in terms of human resources, physical constructions, and institution building; 7) project outcomes: the health benefits gained by the national population; 8) the status of outputs and outcomes at least 3-5 years after the project terminated; and 9) longer-term and unintended consequences of the project.

This project examines the concept of project sustainability from the historical perspective of determining what was sustained after the U.S. government funding was terminated. Projects are sustained if project activities and benefits continue after the life of the project. Project activities (project outputs) include the trained personnel, such as the TSRs or professional sanitary engineers; the physical infrastructure, such as Roosevelt Hospital; and the institutional systems, such as training schools, malaria and water and sanitation agencies, created during the project. Benefits (project outcomes) are the intended or unintended positive impacts of the activities for the health of the Guatemalan population. In most cases actual project benefits could not be determined; therefore, we expected that continuing activities were likely to have produced continuing benefits unless there was reason to believe that conditions which might influence the effectiveness of those activities had changed.

We examined both immediate outputs, those activities like water systems or trained personnel which were created during the life of the project and were likely to produce immediate benefits; and replicating outputs, the institutions which reproduce the immediate outputs, such as construction agencies and training schools.

For each project, we determined whether the project outputs were continuing after the life of the project and then identified the sources of funding for those outputs. Continuing projects which were funded by national sources (private or public) after the U.S. funding ceased were clearly sustained. However, for many projects, replicating outputs were often sustained by other foreign donors. While this source is less desirable since international support can be withdrawn, projects were still considered sustained if Guatemala appeared likely to continue to receive such support in the future.

For each project, judgments were made about the relative degree of sustained activity after the life of the project. After identifying project outputs which were relatively more sustained we compared the characteristics of these projects, and their contexts, to those project outputs which were relatively unsustained. These comparisons were made with regard to both contextual factors and project characteristics which, based on previous studies and on the team's observations, were hypothesized to have an effect on project sustainability. (see Table 2)

TABLE 2

SUSTAINABILITY FACTORS

1. Contextual Factors

   1.1 Natural Disasters
   1.2 Political Factors
   1.3 U.S.-Guatemalan Bilateral Relations
   1.4 Socio-cultural Factors
   1.5 Economic Factors
   1.6 Private Sector
   1.7 Implementing Institution
   1.8 Donor Coordination
   1.9 National Commitment

2. Project Characteristics

   2.1 Project Negotiation Process

   2.2 Institutional and Managerial Aspects of Project

      2.2.1 Vertical vs. Integrated
      2.2.2 Administrative Leadership
      2.2.3 Administrative Component and Training

   2.3 Financing

      2.3.1 National Absorption of Project Costs
      2.3.2 Foreign Exchange Demand
      2.3.3 Substitution Demand
      2.3.4 Cost Recovery
      2.3.5 Cost-Effectiveness

   2.4 Content Aspects

      2.4.1 Project Design
      2.4.2 Training
      2.4.3 Technical Assistance
      2.4.4 Appropriate Technology

   2.5 Community Participation

   2.6 Project Effectiveness

The following report summarizes findings of the separate case studies which are included here as annexes. It reviews the hypotheses relating sustainability to contextual factors and project characteristics and discusses the findings of the cases in terms of the hypotheses.

WHAT WAS SUSTAINED?

The types of projects were broadly different in terms of sustainability. Health service projects had the most sustainable outputs and they were sustained mainly with national, rather than other donor, funding. Water projects were also able to be maintained with national funds and to be replicated with donor funds. Malaria projects were sustained with national funding, although the benefits achieved during the first five years after the project ended were not maintained after the earthquake in 1976 and the failure to spray the following year. Although several INCAP nutrition projects were moderately sustained, these projects were quite vulnerable to political changes and pressures, as well as administrative changes in the Ministry of Health. The family planning project implemented by the Ministry of Health did not have significant continuation of project activities. The family planning activities that do continue through the private sector rely almost entirely on continued AID financing.

Within project types there were, however, significant variations.

1. Health Services: Significant aspects of three of the five major projects clusters in this sector were judged to be sustained. The Roosevelt Hospital constructed in the 1950's continues functioning today. SCISP projects contributed to the continuing administrative structure of the Ministry of Health. The unique Rural Health Technician program, while not as effectively sustained as it might have been, is still functioning throughout the country.

Two types of health services projects were not sustained. The Mobile Units were disbanded after the project ended, and SINAPS, PRINAPS and other small primary health care projects were also unable to produce lasting changes in health services.

2. Water and Sanitation: Projects that were more successfully sustained were the urban projects of the SCISP period, the urban projects implemented by the municipalities institute (INFOM) in the 1970's and recent rural projects run by PVOs. Less effectively sustained were the rural projects of SCISP and more recent projects implemented by the MOH. Latrine projects have been the least sustained component of all rural projects.

3. Malaria: Malaria projects were relatively well sustained after U.S. funding ceased in 1970. After the 1976 earthquake, however, the failure to import insecticides for one spraying season, a decision beyond the control of the health sector, resulted in a dramatic increase in malaria incidence which is only recently being brought down again.

4. Family Planning: Family planning projects have been the least successfully sustained. Public sector activities were unsustained when AID support ceased and private sector activities in APROFAM require continuing AID funding.

5. Nutrition: Of the INCAP nutrition projects, sugar fortification and corn hybrid projects were relatively well sustained, although the sugar fortification was suspended for several years during the 1980's. Nutrition planning is an activity which has continued beyond the life of the project, however, it has produced no appreciable benefits and therefore was judged to be unsustained. As mentioned above, the SINAPS project which was implemented with INCAP technical assistance, was also unsustained.

The project sub-components which were most likely to be sustained were trained personnel and physical infrastructure, while administrative systems were least likely to be sustained. Often this lack of system sustainability severely restricted the ability of personnel and infrastructure to maintain the effectiveness of their activities. Since project activities in this context were unlikely to produce the expected benefits, this also reduced the overall sustainability of the project.

CONTEXTUAL FACTORS

Several characteristics of the context in which projects are designed and implemented may affect their sustainability after the end of AID funding. These factors are relatively fixed and usually not subject to the control of project designers or managers, but should be taken into account in project design and implementation. When faced with contextual factors likely to undermine the sustainability of a project, project designers and managers might modify the project so as to reduce the effect of these conditions on the project or might consider the implications of designing and implementing a project which is not likely to be sustained.

In Guatemala, many contextual factors are relatively constant and are likely to have had similar impact on all projects. For instance the low level of national funding for the health sector limits the effectiveness of almost all projects. The impact on sustainability of these constant and universal factors can only be determined through comparative analysis with other countries.

Natural Disasters

The devastating earthquake of 1976 had serious consequences for economic and health conditions in Guatemala. Many international agencies, including a large number of private voluntary agencies (PVOs), provided immediate relief and initiated a variety of community development projects in the ensuing period. The massive reconstruction effort, coordinated by the National Reconstruction Commission, quite successfully restored many services and facilitated reconstruction throughout the most damaged areas. The Ministry of Health was temporarily reorganized to respond to the emergency, and some departments--such as the Department of Environmental Sanitation--were given new life with the inflow of foreign emergency funds.

Unexpectedly, the emergency appears to have had relatively positive effect on the sustainability of several projects. Water and sanitation projects received follow-on funding from other donors that allowed some AID project activities and benefits to continue. The Rural Health Technicians (TSRs) were able to demonstrate their effectiveness and their value as community organizers, contributing to the decision to continue the TSR program.

The impact of the earthquake on malaria projects is less clear. While incidence of malaria dramatically increased in the period following the earthquake, the failure to spray during 1977 is the central reason for the increase. There is also little to suggest that the relative lack of sustainability of family planning or INCAP nutrition projects was influenced by the earthquake.

Since natural disasters only occurred in these few cases and did not have a consistent impact, we concluded that this context factor was not a significant determinant of sustainability for these cases.

Political Context

Since the initiation of U.S. government funding in the Guatemalan health sector, Guatemala has experienced a ten year period of moderate reforms under Juan Jose Arevalo (1944-50) and Col. Jacobo Arbenz Guzman (1950-4) followed by a U.S.-sponsored coup which initiated a long period of unstable military governments. While elections were held during this period, most were fraudulent. The military governments rarely undertook reform initiatives, although there was a brief period under General Kjell Eugenio Laugerud (1974-78) in which some reforms were possible. By and large the military governments were responsible for several cycles of particularly widespread

repression, including a brutal period beginning in 1978 under General Romeo Lucas Garcia (1978-82) and accelerating in the early 1980's under General Efrain Rios Montt (1982-3), in which many rural communities were decimated.

Since 1954 there have been only two civilian presidents. The first, Julio Cesar Mendez Montenegro (1966-70), was allowed to assume office only with the understanding that the military would be allowed to act autonomously in its brutal counter-insurgency campaign, and on the condition that no major reforms be implemented. Currently, Christian Democrat Marco Vinicio Cerezo (1986-) has come to office on an explicitly modest reformist platform; however, his ability to implement reform policies has been severely restricted by a continuing military influence and the enduring importance of a small economically-dominant oligarchy.

We expected that the political factors that might reduce the potential for project sustainability would be: 1) regime instability; 2) low state capacity; 3) military rather than civilian regimes; 4) low ideological commitment to the welfare of the poor; and 5) the presence of strong interest groups opposed to redistribution of resources in the health sector or to project objectives.

Regime instability provides a context of uncertainty which is likely to have weakened all projects. However, since Guatemala has been politically unstable throughout the period of U.S. support, we are unable confidently to test this hypothesis. (see Table 3) Instability might in some cases, such as family planning, allow for regime changes in which new opportunities for initiating projects might occur.

[INSERT TABLE 3 ABOUT HERE]

Nevertheless, some projects were clearly affected by specific regime changes. The SINAPS project was dramatically weakened when the Rios Montt government took power and most of the technical officials who had been the MOH counterparts of the project were removed or quit.

The Guatemalan public sector controls the smallest portion of the GDP of any country in Central America. This limited access to national resources has severely limited state capacity to implement health programs. Again, this factor is relatively constant and therefore does not allow us to test its influence within Guatemala. Comparisons with states with greater control of national resources might help us test this hypothesis.

There have been only three periods of civilian rule since 1942: the Arevalo/Arbenz period (1944-54), which led to a suspension of U.S. assistance; the Mendez Montenegro period (1966-70) in which the military continued to dominate and no major reforms were attempted; and the current Cerezo government

(1984-present). There is not evidence in our cases to suggest that these governments were any more likely to sustain project outputs than were military governments.

Regime commitment to the welfare of the poor has, in general, been low in Guatemala, except during the Arevalo/Arbenz period and, to a lesser degree, in the current government. There was also a brief period of very modest military reformism in the Laugerud period (1974-78). There is no evidence that reformist regimes are more or less likely to sustain project activities after the life of the project.

Interest group pressures have been significant in several of the projects we examined and may be the only political factor which confirms our hypothesis. Active political opposition by the Church and other conservative interest groups, and (at least in the past) also by the University, has had a major negative impact on the family planning projects. Opposition by physicians has also limited the effectiveness of the TSR project. Although sustained, the TSRs would likely have been much more effective, both during the life of the project and after, if physicians had not had such an important political interest group. Physicians have also been able to pressure the government to increase their salaries and to direct the majority of health resources into physician-oriented hospital services, to the detriment of most projects supported by AID.

Bilateral U.S.-Guatemalan Relations

Relations between U.S. and Guatemala also could affect project sustainability. Since there were periods of conflict between the U.S. and Guatemala -- specifically, the Arbenz period (1950-54) and when the Carter Administration's human rights policy called attention to Guatemala (1977-80)--we hypothesized that projects implemented or completed during these periods would be less likely to be sustained. However, projects of these periods, such as Roosevelt Hospital and other SCISP projects in the 1950s and the TSR and water and sanitation projects in the late 1970's, were all relatively well sustained.

It should be noted, however, that the current level of U.S. interest in Central America has meant a significant increase in funding for health projects, which, as we will see in following sections, might make sustainability of current and future projects less likely without dramatic improvements in the performance of the economy.

In this section, we also consider the changes in US government development policies in the health sector. The SCISP period was characterized initially by interests related to the war effort --Roosevelt Hospital was planned as an evacuation hospital, and campaigns to control malaria and typhus also reflected concern to make the region more accessible to U.S.

troops. After the war, SCISP evolved into a more development-oriented and cooperative effort under Point Four and the International Cooperation Agency (ICA). The Alliance for Progress brought a shift away from functionally defined health projects and an emphasis on economic infrastructure development programs. During this period, only one health services project, Rural Mobile Units, was implemented. However, water and sanitation as well as malaria projects continued to be implemented, and the first major efforts in family planning began. In the 1970's, under a mandate to reach the "poorest of the poor", AID focused its efforts in a variety of primary health care programs and abandoned malaria projects. This focus again shifted in the 1980's with the current emphasis on Child Survival projects.

These shifting policies have had a burdensome effect on some projects, such as malaria. The government of Guatemalan was forced to assume all malaria costs when both AID and UNICEF refused to continue funding because of a general policy change.

However, most of the policy shifts were not so abrupt or radical as seriously to undermine the project activities. For instance, the transition from SCISP to national institutions in the 1960's was not easy but it did not undermine the basic sustainability of the projects. In some cases, such as water and sanitation, the basic policy of AID has not changed significantly and therefore provided a consistent basis for support in the sector. In others, such as the Mobile Units and malaria eradication, the policy shift may have been away from an inappropriate technology which should not have been sustained.

While changes in USAID/Guatemala personnel or policies might have had some impact on implementation of some projects -- such as the continuous presence of Dr. E. Croft (Johnny) Long during the design and early implementation of the TSRs -- and some unfortunately maladroit family planning consultants may have contributed to the general resistance to family planning projects, it is unlikely that such factors have much effect on the long-run sustainability of these projects. Some projects have been sustained without the presence of stable and dedicated health officers and others have continued despite poor U.S. counterparts.

Socio-Cultural Context

Guatemalan society continues to be rigidly divided along cultural, regional and class lines. A prevailing distinction between the vital indian culture and the dominant ladino culture has had particular impact on health systems. A long history of distrust and repression has made communication and service delivery by the ladino-dominated state only moderately effective in reaching the large and rural indian population. Consistent with this division is the urban/rural imbalance in services.

Guatemalan society is also rigidly divided along class lines. With one of the least egalitarian income distributions of Latin America, Guatemala has been dominated by a few wealthy families who control most of the economic resources of the country.

Several programs appear to have been affected by the differences in indian and ladino cultures, demonstrating the need for more appropriate technology for differing ethnic contexts. Latrine projects appear to have been particularly difficult to implement in indian areas, in part because of cultural barriers to their use. Nutrition and family planning projects have had to be designed, as they would in any cultural context, with regard to cultural practices and beliefs.

At the same time, projects which have been designed to accommodate cultural differences and to be responsive to them -- such as the TSRs who have to be sensitive to community norms in order to organize effectively -- are more likely to be sustained in this context.

Other social issues, such as urban/rural and class inequalities, as well as the low educational levels, were less clearly related to project sustainability. Projects have tended to be targeted toward the disadvantaged rural areas and toward lower classes and the less educated and therefore this context is relatively constant across projects and does not appear to distinguish sustained from unsustained projects.

Sexual inequality is important for family planning projects. Although much of the opposition comes from the Church and conservative interest groups, many women are prevented from seeking or demanding family planning services by their subordinate role in Guatemalan society. This context may have a role in undermining the sustainability of these projects.

Socio-cultural context appears to have been important for sustaining appropriately designed projects. It may also have undermined the sustainability of family planning projects and latrines.

Economic

The Guatemalan economy, until recently has shown consistently high growth rates. During the thirty years preceding 1980, real economic growth was very strong -- averaging 3.8% in the 1950's, 5.5% in the 1960's and 5.7% in the 1970's. In response to the world recession in the 1980's Guatemala's economy when into a severe and sustained recession from which it is only recently showing signs of recovery. Figure 1 presents the three-year moving average of real economic growth rates in Guatemala from 1956 through 1986. Before 1978, only one brief period (1958-62) of declining growth rates occurred, and even during this period the rate did not drop below three percent.

[INSERT FIGURE 1 ABOUT HERE]

Since economic growth generally makes more resources available for the government, it might be expected that projects that terminate during periods of growth would have a greater possibility of gaining national support. However, we found that the end of AID funding for both sustained and unsustained projects occurred during the sustained period of economic growth up to 1980. (see Figure 1) Projects that were implemented during the 1980's, by and large are still on-going, giving us little evidence of the impact of the recent economic decline on project sustainability.

The share of the GNP that is controlled by the public sector might also affect project sustainability. We might expect that a growing public sector would be able to provide funds to take over projects as their foreign sources of support are withdrawn. In relative terms, Guatemala's public sector has remained extremely small even by Central American standards. Total public spending was just 12.3% of GNP in the 1970's -- well below the norm for Central America. Nevertheless, the public sector did go through a period of growth between 1976 and 1981 (Figure 2).

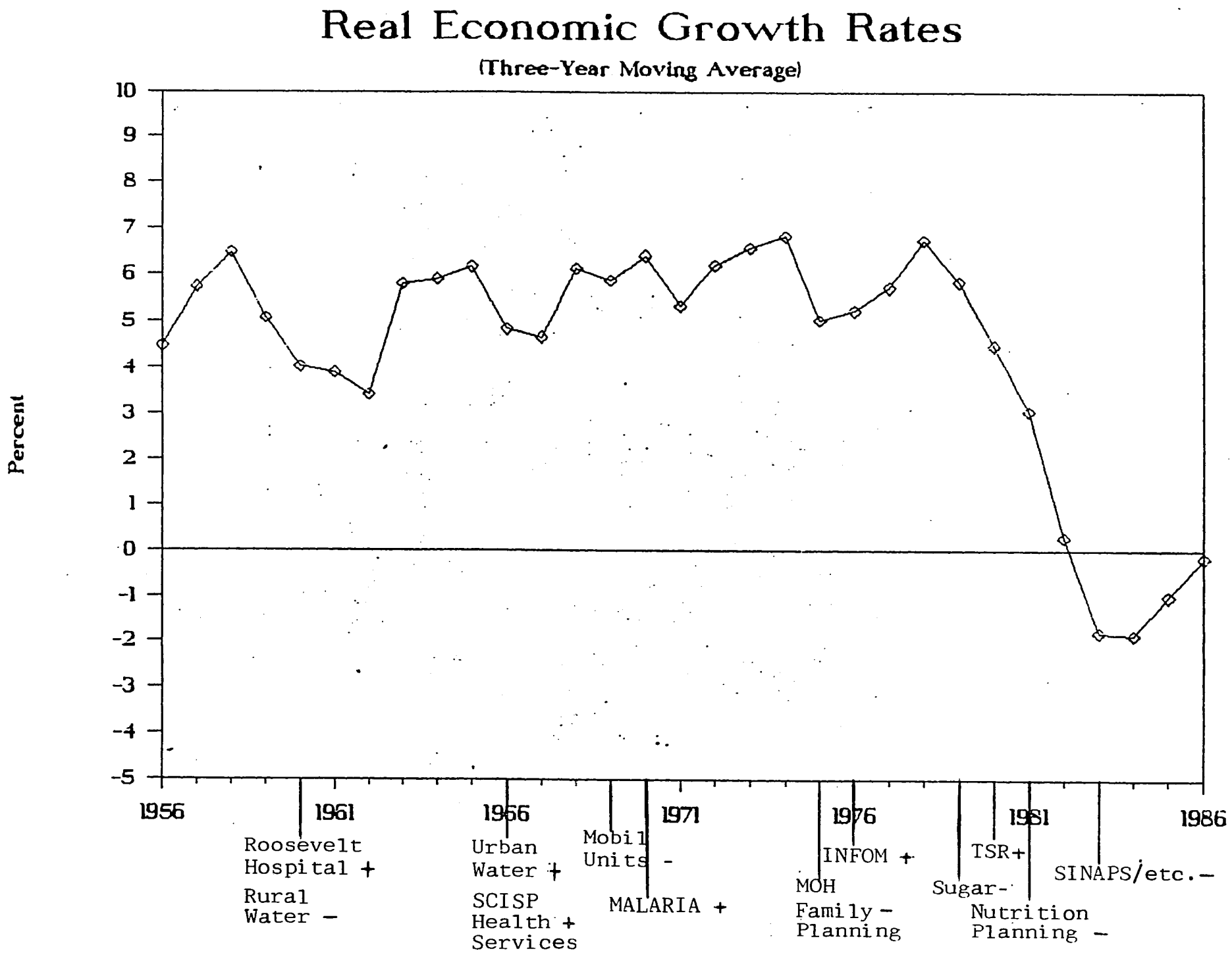
[INSERT FIGURE 2 ABOUT HERE]

There is some support for our hypothesis since AID funding for many of the unsustained projects in this study ceased during the period of recession in the early 1980s. However, there were several important exceptions -- TSR, recent rural water projects. The long period of sustained economic growth prior to 1980 also saw projects which were both sustained and unsustained.

Within the public sector, the Ministry of Health was responsible for 8.3% of the total public spending annually. Real expenditure data from 1970-86 show no systematic changes in relative priority between MOH and other public sector spending. (Figure 2) On the contrary, the data actually suggest regular tradeoffs from one public sector to another in which MOH losses one year are made up by gains the next.

Taking our analysis one step further, we expected that projects for which AID funding ceased during the periods of growth in MOH share in the public sector would be more sustainable. Again, if there were more resources in the MOH budget, more would be available for absorbing project costs. However, since there were no systematic changes in the relation between MOH and the public sector, we were unable to test this hypothesis.

FIGURE 1


Real Economic Growth Rates
(Three-Year Moving Average)
Percent
10
9
8
7
6
5
4
3
2
1
0
-1
-2
-3
-4
-5
1956
1961
1966
1971
1976
1981
1986
Roosevelt Hospital +
Rural Water –
Urban Water +
SCISP Health + Services
Mobil Units -
MALARIA +
MOH Family – Planning
INFOM +
Sugar-
TSR+
Nutrition Planning –
SINAPS/etc.–

Within the MOH there are different priorities for spending on curative and preventive programs. There was a period of steady growth in the percentage of assignable budgets to curative care in relation to preventive programs from 1965 to 1970. (Figure 3) The curative priority slightly declined from 1970 to 1979 when it climbed again and remained high for three years. (This Figure, however, should be interpreted with caution since the program budgeting process was just beginning in 1964 and the first period of growth may reflect adjustments to prior errors.)

[INSERT FIGURE 3 ABOUT HERE]

Finally, we considered the possibility that if more resources were being directed toward the preventive programs that received most of AID funding, more resources could be budgeted to take over foreign supported projects. We expected that, as the MOH priorities shifted toward preventive and away from curative programs, AID funded projects would be more sustainable. The period of growth in preventive care orientation was relatively steady throughout the 1970's. During this period, AID funding ceased for three successfully sustained projects (malaria, INFOM water and sanitation programs and the sugar fortification) and for one unsustained project (MOH family planning). By contrast periods of growth in curative priority were also related to successful projects in the 1965-71 period (urban water and sanitation, SCISP health sector projects, and malaria) and one unsuccessful project (mobile units). In the brief period of resurgence in curative priority in 1980-3, AID funding for the TSR (sustained) and nutrition planning projects (unsustained) ceased. This variable evidence was not conclusive for testing our hypothesis.

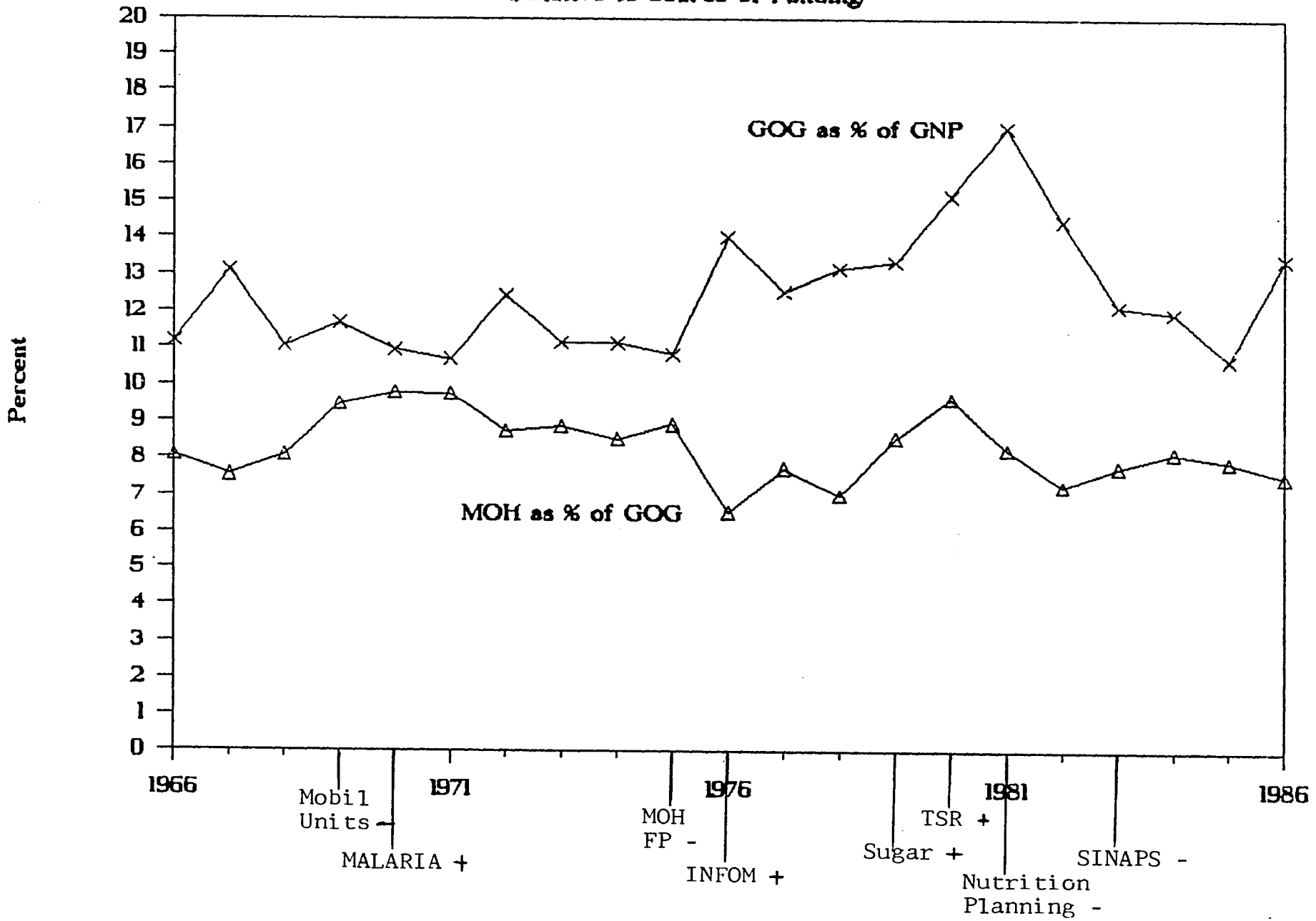
Our simple tests of these hypotheses are insufficient for drawing generalizable conclusions (see Annex G). It appears from this review that the economic factor is too complex to have simple indicators related to sustainability. We can conclude that, with generally available economic indicators, there is insufficient evidence to confirm or deny our hypotheses. For purposes of project planning and implementation, it appears that we cannot directly relate economic factors (as defined here) to sustainability.

Over the last four to five years, AID has tried to strengthen Guatemala's weakened economy through the use of Economic Support Funds (ESF), a cash transfer program that has injected the Quetzal equivalent of $160 million into the economy since 1983, with another $80 million budgeted for the next fiscal year. None of these funds have been used in health sector activities examined here. However, the high levels of ESF, along with the rapid growth in international donor support for Guatemalan projects in all sectors, raises serious questions about the sustainability of any activities of the Guatemalan government, were this funding to stop. This is a historically different situation from the previous years which we have

FIGURE 2

Actual Expenditure Shares: GOG and MOH

(Relative to Source of Funding)



analyzed and therefore our study gives no clear evidence for this conclusion. However, many officials are expressing fears that, should donor priorities and ESF shift from supporting Guatemala, very severe repercussions for projects and for general functioning of the government would occur. Future studies of sustainability should assess the implications of a general and large dependence on several sources of external funding on project sustainability.

Private Sector

The private sector health providers and the existence of an effective network of PVOs to implement AID projects are contextual factors which were hypothesized to influence sustainability of projects.

The private sector in Guatemala includes private hospitals and clinics (including religious-sponsored services), pharmacies, traditional healers, midwives, and "injeccionistas". In some cases, such as the empirical midwives, AID supported projects incorporates this sector in relatively effective ways into health delivery system projects. For the most part however, these services are competing on couple monetary with the public health services that receive most of AID funding. These services tend to operate independently of the public services and do not appear to have a significant impact on the sustainability of U.S. supported projects.

Another portion of the private sector is the PVOs and other private sector institutions which act as implementing agencies for AID and other donors. Since the earthquake in 1976 there has been an unusually large number of active PVO's in Guatemala, although many were forced to leave by the repression of the early 1980's. The existence of this large group of PVOs provides alternative implementing institutions for AID projects. However, AID has rarely taken advantage of this resource. Except for the long term use of CARE and CRS in food distribution and feeding programs, there have only been a few small recent projects using PVOs -- Agua del Pueblo, Project Hope and a few others. While AID might have sponsored more PVO projects, most are so small as to constitute a difficult project management problem. There have been several attempts to provide an umbrella PVO association, which might manage and coordinate PVO activities and provide an appropriate funnel for AID support. However, to date no clearly institutionalized coordinating body has emerged.

Other private institutions, such as the sugar producers, have implemented some AID projects with only modestly sustained results.

The effect of the general private sector and the existence of large PVO sector does not appear to have been related to the sustainability of past projects. If future projects utilize more PVOs, the effect of this large resource base on sustainability might be tested.

Implementing Institutions

Some AID projects can have major impact on the structure and capacity of implementing institutions. However, in most cases, at least initially, AID projects are implemented within the existing institutional structures in Guatemala. The Ministry of Health is the major implementing agency for health projects. However, other institutions in the sector have also received AID support, including several government water and sanitation agencies, the University of San Carlos, and private voluntary organizations in family planning, water and sanitation, and nutrition.

Six characteristics of these institutions were expected to undermine sustainability: 1) rapid turnover and low quality of top officials, 2) centralization of decision-making, 3) fragmentation of authority and responsibility, 4) low skill levels of personnel, 5) conflicting organizational goals, and 6) for PVO's, the existence of competition among them for funds or beneficiaries.

1. Top Officials: Ministers of Health have changed twenty three times in the last forty two years. This high rate of turnover is usually reflected throughout the top level of the ministry. The most stable position in the ministry has been the Sub-Director General -- Dr. Orlando Aguilar, for example, occupied the post throughout the 1960's. The general pattern of instability of top officials appears to have been constant throughout the 1942-87 period. The stability of the technical officials from sub-director down through the normative divisions was only interrupted once -- during the Rios Montt administration when many officials were removed or resigned. This turnover in 1982 appears to have severely undermined the sustainability of INCAP's SINAPS project.

Other implementing institutions have had more stable leadership. Several institutions responsible for sustained projects, such as INFOM, ERIS, CARE, and Agua del Pueblo, have had relatively stable leadership. However, family planning projects managed by APROFAM, which has had the same top official, Dr. Roberto Santiso, since its founding, continue to depend on AID funding.

It seems likely that instability of top officials has undermined sustainability of projects implemented by MOH. However, some projects, such as the TSR Program, achieve some

degree of sustainability, despite the rapid turnover. Stability of officials cannot guarantee sustainability if other factors are not favorable.

2. Centralization/Decentralization: Despite a long term effort to decentralize the Ministry of Health through a regionalization process begun in 1969, the MOH continues to be highly centralized. Even routine decisions about budgetary allocations and personnel usually have to be approved at the highest levels in the Ministry. The Ministry has experimented with a variety of organizational structures, which included brief periods with regional offices to oversee the area and district offices, and with different arrangements for vice-ministries and for sub-director generals. These structural changes may have added instability to the institution, but they have done little to change the centralization of MOH decision-making. This centralization was reasonably constant over the entire period of U.S. government-supported projects.

There is little evidence that other public institutions (SCISP, INFOM, SNEM, etc.) have been much more decentralized than the Ministry of Health. However, because many PVO's are relatively small institutions, they are likely to be closer to the service delivery base than larger and more complex organizations, and therefore might have organizational structures that permit them to be more responsive to community level needs.

While centralization imposes a variety of implementation problems which delay projects and often make them less able to respond to different needs at the base of the institutions and in the communities, it is not clear that this factor impacts on sustainability of projects. Projects are sustained and unsustained in the environment of centralized institutions. It can be reasonably argued that in some cases, such as malaria, the centralization of SNEM decision-making is functional for effective implementation and sustainability. Few observers gave evidence that this factor was determinant in any particular case.

3. Fragmentation: Fragmentation refers to the tendency of an organization to be divided into separate relatively vertical, programmatic-determined sub-units. These sub-units have little interaction or coordination and often have little communication or understanding of each other's activities. There was almost universal recognition of the fragmentation of the Ministry of Health, where even subunits, such as UNEPAR (responsible for some rural water and sanitation projects), are themselves fragmented by project activity. Often the foreign donors contribute actively to this fragmentation by requiring that their project be implemented by a separate unit within the Ministry and by imposing separate reporting, budgetary and administrative routines.

Some vertical institutions, such as SNEM and INFOM, are less fragmented, and most PVO's are too small to be fragmented. These institutions were relatively more effective in sustaining project activity than the fragmented MOH has been when it worked in the same types of projects.

There is almost universal agreement that fragmentation has inhibited the effectiveness of projects and contributed to the lack of sustainability of projects. An environment in which little is known of a project -- where few officials not directly involved in the project are aware of its objectives and activities, where few programs depend on coordination with project activities for their own continuation, and where implementation usually requires continual identification with foreign-defined project activities -- is not likely to be conducive to continuation of project activities.

An excellent example of the effect of this fragmentation is the Department of Environmental Sanitation (DSA) which ran a variety of foreign supported projects, but was superceded in the mid-1970's by a newly created water and sanitation unit, UNEPAR. DSA collapsed until it received renewed international funding after the 1976 earthquake.

Perhaps even more clear is the case of the Division of Maternal and Child Health (DIMIF). This division received major funding from AID, UNICEF, and UNFPA, primarily for family planning in the 1960's and early 1970's. During this period, DIMIF became the most important and powerful division within the MOH. However, once these funding sources shifted to other implementing agencies, DIMIF was reduced to a relatively small and ineffective division. Only recently has it become a major implementing unit, again dependent on several sources of international funding for Child Survival programs. Many fear that this shaky institutional base for current programs will again go through a cycle of collapse if foreign funding does not continue to favor the division.

The TSR program is one of the few sustained projects that was implemented in the fragmented MOH. It is clear that fragmentation contributed to the on-going problems of the lack of integration of the TSR's into the MOH. They appear to have been sustained despite fragmentation, certainly not because of it. Roosevelt Hospital was well sustained even in the fragmented environment probably because of the high national commitment to urban hospital care.

The more integrated institutions, such as INFOM and SCISP, were more conducive environments for sustained projects.

We can conclude that a fragmented institutional environment is not conducive to sustained projects.

4. Low Skill Levels in Relation to Project Needs: Institutions which have been successful in developing technical skills appear to have been more conducive environments for sustained projects. Water and sanitation institutions have been staffed with well-trained sanitary engineers, often trained by the U.S.-supported engineering school (ERIS) and by fellowships to other schools. SNEM was also successful in developing high skill levels in the institution. Both of these areas had received considerable skill development under SCISP.

During early stages in implementation of several projects in MOH, many of the relevant personnel had high skill levels. TSR's in particular attracted a highly skilled and motivated team of teachers for the Quirigua school. However, since the overall skill levels in the MOH are inadequate, it was difficult to maintain the effectiveness of the training program. Perhaps more important, the skill levels of many of the doctors, nurses and administrators, whose participation would have made TSR's field activities more effective, varied greatly. Again, although TSR's were sustained, they clearly would have been more effective had skill levels in MOH been higher.

There are, however, limits to this factor. Family planning and nutrition projects were implemented in institutions with relatively high skills (in INCAP's case, internationally renowned nutrition professionals). These high skill levels did not overcome the other conditions which made these projects unsustainable.

This factor appears to have been particularly important for sustainability. Low skill levels within the implementing agency clearly undermined sustainability and high skill levels favored sustainability. However, high skill levels could not overcome other negative factors.

5. Conflicting Organizational Goals: Organizations with multiple goals that conflict with the objectives of the projects appear to be less conducive to sustainability. The greatest conflict of goals appears within the MOH, which heavily favors urban-based, curative care rather than the primary care activities of most of the projects. Only the construction of Roosevelt Hospital was consistent with the MOH bias toward curative care.

INCAP is another institution with somewhat conflicting organizational goals which led to considerable infighting. The major division is between research-oriented professionals, whose primary objective is to contribute to academic nutrition issues on a world scale, and those interested in applied nutrition and providing project-related technical assistance. AID (as well as other U.S. donor agencies) has contributed to this conflict by funding both types of projects, although recently its focus has shifted more toward the applied nutrition emphasis. Other implementing agencies for INCAP projects include the National Planning Commission and the sugar producers, both of which tend to have conflicting goals.

Most of the other implementing institutions have organizational goals which tend to be consistent with the goals of their projects. Again, however, this factor does not seem to guarantee sustainability. APROFAM's projects are not sustainable, even with consistent organizational goals.

The existence of conflicting organizational goals in institutions responsible for implementing projects does appear to inhibit sustainability.

6. PVO Competition: We expected that competition among PVO's for funds and for beneficiaries might undermine the sustainability of PVO projects. CARE and Agua del Pueblo both receive funds from AID and work in the same regions. Many other PVO's both work in the highland areas and seek funds from AID and other sources. There seems to be no evidence that this competition has affected sustainability.

International Donors

Several characteristics of the presence of other international donors in health were also considered to have a possible impact on sustainability of AID projects. Projects were expected to be more sustainable if donors coordinated their support so as to avoid the "bandwagon" effect and, rather, pursued a strategy of division of labor or sequenced follow-ons.

There are two clear cases of "bandwagon" projects in our study. The malaria programs of the 1960's, when AID, PAHO and UNICEF pursued a strategy of malaria eradication, clearly demonstrated one danger of the "bandwagon" effect. With all donors providing funds for the same type of project, the government had to absorb a significant financial burden when all three donors pulled out in the early 1970's. Nevertheless, the malaria project activities and benefits continued with national funding after the donors ceased support.

The second case of international "bandwagon" effects is the current period of Child Survival projects. Again, many donors are pursuing similar strategies and assuming major responsibility for funding those activities. Currently, the total foreign funding level for the next five years is exceeding the absorptive capacity of the government. Should all donors shift their support to other activities, as they did with malaria, it is unlikely that the government of Guatemala could absorb the funding of project activities. With the potential for AIDS providing a possible future "bandwagon", it is not farfetched to consider the possibility that donors might shift emphasis again and leave Child Survival projects with considerably lower funding levels.

On the other hand, there are several cases of successfully sustained projects whose replicable outputs -- such as the institutions which construct new water and sanitation systems -- continue with follow-on support from other donors like IDB or UNICEF. This follow-on support appears to be crucial to sustainability of the replicable outputs, however, since the support has been continuous and is not likely to decline in the near future, we cannot determine whether national funds would be applied in the absence of foreign support. Foreign funding, in any case was not necessary for the continuation of immediate outputs -- such as the water systems which were put in place during the life of the project.

Although there are other donors in the family planning area (UNFPA) and nutrition (foundations), there was little evidence in our cases that these donors would assume a major follow-on role for AID projects.

The evidence from our cases is mixed and therefore our conclusion is that the effect of donor "bandwagons" and donor sequencing is not consistent across project types.

National Commitment

National commitment is defined as the consensus among important decision-makers and interest groups in the Guatemalan health sector that the goals and objectives of a project were a national priority. Alternatively, the presence of major conflict among decision-makers or interest groups over the goals and objectives of the project is taken as evidence of a 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 we treat below in our analysis of the financing of projects.

Projects which had high levels of national commitment were the malaria projects, water and sanitation, and the Roosevelt Hospital. The TSR project initially had a significant opposition from important health sector interests and although this opposition has died down, there has not arisen a full consensus that TSRs should be a priority program. Nutrition programs have not gained sufficient support to become a national priority, nor have they generated major opposition, except by sugar companies. On the other hand, family planning programs have been seriously impeded by the conflict generated by opposition interest groups.

It is clear that national commitment is crucial to sustainability. Only one project, the TSR project, was able to be significantly sustained without a major national commitment.

PROJECT CHARACTERISTICS

The following factors are those project characteristics that can be altered and controlled by project designers and managers with much greater latitude for choice than is available for the contextual factors. Since these factors are more controllable, the lessons from this section should have specific application in judgments on project design and in evaluation of on-going projects.

For all of these factors, the Guatemala cases show significant variation and therefore will allow clearer evaluation of the hypotheses. It should be kept in mind, however, that these factors might be contingent on some of the contextual factors.

Project Negotiation Process

Projects that appear to be imposed by foreigners would seem to be least likely to be sustained after the foreign funding ceases. They clearly did not gain sufficient national support at the beginning of the project and usually are likely to generate nationalistic resistance throughout the project. On the other hand, projects which are designed through a process mutually respectful negotiation between AID and the government of Guatemala would be more likely to have developed a consensus over goals, objectives and implementation plans. We expected that the imposed projects would be less likely to be sustained while those which were developed in a mutually respectful process would be more likely to be sustained. This hypothesis is consistent with the finding cited above that national commitment to project goals is more conducive to sustainability.

Our cases appear to confirm the hypothesis. The least sustained projects - - family planning and some nutrition projects -- tended to be perceived as imposed from outside. Some of the more sustained projects -- Roosevelt Hospital and TSR -- were developed with strong Guatemalan participation. Roosevelt Hospital was almost entirely a Guatemalan initiative and the TSRs were developed through a lengthy process of interaction between AID officials and Guatemalan officials.

The SCISP period appears to have been a period in which health services, malaria, and water and sanitation projects were initiated with considerable Guatemalan involvement. Over the long life of SCISP Guatemalan counterparts were trained and assumed a greater role in administering the programs and in setting priorities. As later water and sanitation and malaria projects were developed, there appears to have been continuing interaction between AID and Guatemalan officials in the development of project design.

Institutional and Managerial Characteristics

Three central aspects of the institutional structure of projects were identified as likely to be important for sustainability of project activities and benefits: 1) vertical or horizontal design; 2) managerial leadership; and 3) administrative systems and training.

Vertical vs. Horizontal Design

Projects that are organized as a separate vertical implementing unit are often considered to be more likely to be effective because they can focus resources and activities on the goals of the project and do not require compromises with other interests in the bureaucracy. However, vertical projects also are vulnerable. The vertical hierarchy often relies heavily on foreign funding during the life of the project, making it harder to gain national funding when the foreign sources cease. They also tend to generate institutional jealousy -- particularly if they are perceived as having gained extra resources and salaries in relation to similar services that are not receiving AID funds. These vulnerabilities suggest that vertical projects might not be sustained.

Projects are vertically organized if their administrative hierarchy is separate from the usual national implementing agency, or forms an autonomous unit within the existing structure, and if this administrative structure has its own narrowly defined goals and objectives. Autonomy exists if there is no clear chain of authority which involves required communication and coordination between project administration and various units and levels of the normal administrative structure.

A second aspect of vertical programs is that they tend also to be privileged, in that they receive salary subsidies and more materials than equivalent services in the national agencies.

Most U.S.-supported projects in Guatemala were vertical programs. Family planning projects in the MOH were run as separate privileged units within clinics and were administered by a separate hierarchy within the DIMIF. When the program was altered to involve APROFAM in training and logistics of distribution, verticality was retained, although the privileged character of the program was eliminated. The nutrition planning project was integrated into the National Planning Commission, but was not integrated into the implementing institutions.

The TSR program was also implemented through a vertical office attached directly to the Minister's office and not the Director General of Health services. This implementing office, including a separate training unit at Quirigua, never developed

an adequate capacity to coordinate and communicate with the health service network within which the TSRs were to function. This lack of integration has plagued the TSRs since the beginning of the program, creating confusion over their role and conflicts with other health delivery personnel in the MOH system. This conflict several times raised the possibility of terminating the TSR training project.

Water and sanitation and malaria projects provide a slightly different organizational design. While they were implemented by vertically organized institutions -- such as SNEM and INFOM, they were not run as separate projects within those organizations. Rather, they were fully integrated into those vertical national institutions.

An example of a much more fully integrated project, although not funded by the U.S. government, was the Rural Health project funded in the 1950's by PAHO and UNICEF. This project established a pilot health center in Amatitlan and a series of training and education programs (some of which drew on SCISP activities in malaria). The pilot provided a model which was then adopted by the MOH as it extended a network of health centers throughout the country. This project was fully sustained after PAHO and UNICEF funding stopped and was fully integrated into the implementing institution through the Directorate General of Health Services.

We can conclude that vertical projects were less likely to be sustained than integrated projects. The most significant exception is the TSR program, which, although it was sustained, was clearly less effective than it could have been had it been integrated. Furthermore, the training program was seriously threatened with extinction, in part because of this failure to be integrated; in that sense, the TSR program may be the exception which proves the rule.

Managerial Leadership

Leadership is often crucial to the success of projects. In most countries there are examples of determined and qualified individuals succeeding in creating and managing effective projects in the face of considerable adversity. We expected that projects which had more stable and qualified project leadership -- both AID and Guatemalan counterparts -- would be more likely to be sustained than projects with rotating or incapable leadership.

In general this hypothesis was supported by our cases. The SCISP period, which generated sustained malaria, water and sanitation and several health services projects, was characterized by relative stability and high quality of both U.S. and Guatemalan leadership. One well qualified Guatemalan official remained in high positions within SNEM for many years.

The TSR project was managed by a relatively stable team of Guatemalan health officials and Dr. Long from AID. Agua del Pueblo also has been characterized by effective leadership.

The less successful water and sanitation projects in the 1950's, managed by the Department of Environmental Sanitation, and the initial CARE project were plagued by poor leadership. The MOH family planning project also suffered from leadership inadequacies and instability of both AID and Guatemalan counterpart officials.

Administrative Systems and Training

If institutional constraints limit the effectiveness and sustainability of projects as we found above, we might expect that projects which improved the administrative systems of implementing agencies and which provided administrative training would themselves be more sustained than were projects which did not provide for such institution building. We did not find conclusive evidence to support this hypothesis.

The earliest U.S. government supported projects had significant administrative development and training programs. Malaria, water and sanitation, as well as health services in the SCISP period all benefited from these components in projects. In more recent years, there has been much less emphasis on institutional development in these areas. The lack of administrative components in the TSR program may have undermined its capacity to integrate TSR activities into the implementing units of MOH. Few of the INCAP projects contained administrative components.

On the other hand, even though administrative training was part of the family planning programs, it could not assure sustainability.

While the inclusion of an administrative development component did not appear to have improved the likelihood of sustainability, it might be useful to evaluate the magnitude of that assistance. In the projects we reviewed, the administrative component of all but the SCISP projects was not likely to have a major impact on the implementing institution. However, the SCISP projects had major components designed specifically to strengthen the administrative structures and these projects were sustained.

Financing

We considered five separate financing aspects of projects which might have an impact on sustainability: 1) the progressive absorption of project costs by the national government budget; 2) the recurrent foreign exchange demands; 3) required shifts in priorities from established programs; 4) cost recovery mechanisms; and 5) cost effectiveness.

National Absorption of Project Costs

It is often expected that projects which have achieved a progressive absorption of recurrent project costs into the national budget are more likely to be sustained than those projects which are externally funded at high levels throughout the life of the project. Unless the national government has had time to include in its national budget successively larger portions of recurrent costs it will be less likely to be able to allocate resources to project activities when the external funding is terminated. By contrast, budget line items, especially for personnel, are seldom eliminated from year to year, making it difficult to dismantle projects which have established budgetary commitment.

This hypothesis was generally confirmed by our cases. The costs of the major health service projects were supported by significant levels of national funding. Eighty-eight percent of Roosevelt Hospital construction was funded by national sources. While the reconstruction of the Quirigua hospital into the TSR training school was funded by AID, most of the recurrent costs of the training program were progressively assumed by the MOH.

For water and sanitation, the recurrent maintenance costs were absorbed by several sources: the municipalities, MOH, and the communities. The costs of replicating outputs, in this case, the investment costs of constructing new water and sanitation systems, were not absorbed and no plan has been developed for such an absorption. The fact that international donors are likely to continue funding these investment costs into the foreseeable future has not placed pressure on the government to plan such an absorption of investment costs.

The malaria projects clearly demonstrated this effect, although it was not programmed into the original agreements: indeed the original loans required a fixed relationship between AID and GOG contributions which anticipated a 65% contribution by the GOG. However, the uncertainty of AID funding and its suspension in 1964 forced the government to begin absorbing larger segments of malaria costs. This ad hoc national assumption of costs during the life of the project probably contributed to the willingness and capacity of the government to absorb the program and subsequently expand it.

On the other hand, projects which did not include recurrent cost absorption tended not to be well sustained. Family planning projects did not have significant government absorption of commodity costs and did not provide for continuation of subsidized incentives for personnel.

We conclude that national absorption of project costs is extremely important for project sustainability.

Foreign Exchange Component

Foreign exchange is usually a particularly severe financial constraint on national budgets. The scarcity of foreign exchange often forces governments to choose priorities for importing products, especially in the government sector. We expected, therefore, that projects which impose a long-term recurrent demand for large amounts of foreign exchange would be less likely to be sustained.

Recurrent foreign exchange components for some unsustained projects were significant, although in terms of national accounts they may be quite low. For nutrition and family planning projects, foreign exchange for contraceptives and imported vitamin supplements pose a foreign exchange demand which the government may not assume. Vitamin A supplementation was suspended for a period in the 1980's when no foreign exchange was made available for purchase of Vitamin A. The mobile units project in the 1960's also had high demand for foreign exchange requirements for repairs, gasoline, and medicine.

After the period of high investment costs, much of which did require significant imports, the foreign exchange demand of successfully sustained projects was quite low. The TSRs create little recurrent demand for foreign exchange. One area does however, limit their effectiveness and that is the foreign exchange restrictions that limit their transportation (gasoline and repairs for motorcycles). Maintenance of water and sanitation programs requires little foreign exchange demand since most of the materials are locally produced.

Two sustained projects, however, did have major foreign exchange components which might have restricted, but did not prevent, sustainability. Roosevelt Hospital as a large curative hospital requires a constant drain on foreign exchange for medicines, equipment and repairs. However, in most countries this demand is accepted by national governments so as to avoid conflict with beneficiaries and health service personnel. Malaria programs have high foreign exchange requirements for insecticides. The government of Guatemala was willing to assume these costs at the end of the project; however eventually it shifted its control strategy to lower the required insecticides and reduce the foreign exchange burden.

We concluded that foreign exchange requirements did not severely limit sustainability if other factors were in favor of project continuity.

Substitution Demand

Substitution demand refers to the tradeoff imposed by choosing to shift resources in a limited budget from already established budget items to new ones necessary to fund the project. If a project would require a significant shift of resources from already established programs, it would seem to be less likely to be sustained than projects which would not require significant tradeoffs.

In health services the balance between preventive and curative priorities might have been affected by the projects funded by AID. The Roosevelt Hospital placed a major burden on the ministry budget which shifted resources toward curative care. On the other hand, later health services projects -- TSR and SINAPS -- would have required significant shift toward preventive care had they been fully implemented. TSRs however, were continued in an environment of a more rapidly growing curative sector and did not impose such a tradeoff during the life of the project. That it was not expanded after the project terminated probably reflects the unwillingness of the MOH to make such a tradeoff. The failure of SINAPS to become a model for the rest of the MOH also reflects this preference.

In the water and sanitation sector, maintenance of existing systems does not require significant tradeoffs. However, if foreign funding for new construction were to end, the demand for substitution would be great. This eventuality has not yet occurred, making it impossible to measure this effect.

In malaria, the high costs of assuming the total costs of AID and UNICEF projects appeared initially to threaten other existing programs. Growth in both the national and MOH budgets at the end of the projects, however, made obvious tradeoffs unnecessary. Since that period of growth, malaria programs have reached a plateau and not imposed new substitution demands.

Family planning and INCAP nutrition programs tended to be too small to impose significant tradeoffs.

This mixed evidence did not support or reject our hypothesis.

Cost Recovery

Current AID policy considers cost-recovery to be likely to enhance project sustainability. To examine this assumption we expected that projects which were able to recover a significant portion of project costs would be more likely to be sustained.

Projects which had some cost recovery component included: the Mobile Units in the 1960's which established a Q .25 fee for each consultation; sugar fortification which allowed costs to be passed on to the customers; some social marketed contraceptives; and water projects. With the exception of sugar fortification and, to some degree, water projects, these mechanisms rarely produced significant revenues. Even the tariffs collected for water systems are unable to recover costs of maintaining the systems.

Since cost recovery was such a small portion of recurrent costs for projects and since projects with cost recovery were not any more likely to be sustained than projects without cost recovery, we conclude that cost recovery -- as implemented in these cases -- did not contribute to sustainability.

Cost Effectiveness

We expected that projects which made more efficient use of their resources would be more likely to be sustained. While it is difficult to determine specific cost-effectiveness in most of our cases, informants suggested that some projects were generally considered to be more costly than was necessary for the effectiveness of the activities. Some check on use of resources is provided by accounting and monitoring requirements of most donor agencies, placing limits on the potential for corruption.

Some of the family planning program activities have been specifically examined with a cost-effectiveness analysis and found to be utilizing cost-effective measures to improve service delivery. The shift in malaria strategy from eradication to a more appropriate control orientation also represented a more cost-effective means of reducing malaria incidence. The INCAP fortification projects were considered to be quite cost-effective means of reducing endemic goiter and improving nutrition levels.

By reputation, water projects funded by AID were seen as unnecessarily more costly than other water projects, and the INCAP nutrition planning project is viewed, even within INCAP, as not being particularly cost-effective.

While TSRs provide relatively low cost preventive services, the cost of their training and salaries, compared to other alternatives to physicians' services -- like auxiliary nurses or unpaid promoters -- is often cited as evidence of high relative cost for this program.

Based on this review there is some evidence to suggest that cost effectiveness during the life of the project has a positive effect on sustainability. However, our evidence is so uncertain that it is difficult to draw confident conclusions.

Content Aspects

Project Design

Several specific facets of project design might have bearing on sustainability. In this study we considered the clarity of goals, the length of the implementation period, the size of the project budget as crucial aspects of project design which might have impacted on the sustainability of the project.

More clearly defined goals have usually resulted in more effectively implemented projects. However, there was little evidence in this study that this factor affects sustainability. Projects with vague goals -- such as the early SCISP projects and the nutrition planning project -- were both unsustained and sustained. Projects with relatively specific goals -- family planning and water and sanitation -- also had different degrees of sustainability. Furthermore, malaria project goals were initially well-defined for eradication purposes; however, the capacity of the Malaria Division to change its strategy was a factor in its long-term sustainability.

Projects which were designed for longer periods might have had sufficient time to gain support among beneficiaries and the institutions charged with their implementation. Long project life could bring a more enduring impact, an institutional interest in maintaining established routines, and greater institutional capacity, all of which could be expected to promote sustainability. This study, however, did not support this hypothesis. While long-term projects of the SCISP period were relatively well sustained, however, so were short-term PVO and INCAP fortification projects. The duration of projects was not related to sustainability.

We expected that projects with small budgets would impose less requirements for national absorption of project costs and therefore be more sustained. No such relationship appeared in our study. Large projects were as likely to be sustained as small projects.

Projects designed to produce visible and desired benefits and generate demand for services from beneficiaries were expected to be more sustained. Our studies gave mixed evidence. Roosevelt Hospital and water projects tended to produce high demand from beneficiaries. Nutrition and family planning projects have not had this effect. However, two sustained projects, malaria projects and TSRs, did not appear to generate significant popular demand. We conclude that this characteristic is not significantly related to sustainability.

There is little evidence that any of the design factors was related to sustainability.

Training

Many of the projects involved significant technical training programs. We expected that this component would be more likely to be sustained than other aspects of a project, especially if the personnel trained in the project had significant prospects of finding salaried positions at the end of their training. These training components included both professional training, often at overseas institutions, and in-country professional and para-professional training such as the TSR school and short courses in family planning for auxiliary nurses.

It appears that the training programs that had strong probability of relevant employment opportunities were most likely to be sustained and to contribute to the sustainability of the rest of the project. The professional training programs of the SCISP period projects (malaria, water and sanitation, and health services) provided long-term professional and managerial leadership which maintained project activities. The prospects for employment for family planning were not particularly good in the MOH; however, many could work in APROFAM clinics. While INCAP had training programs for nutritionists, AID projects did not support this activity.

The TSR program offers an interesting view on this issue. The center of the project was the training school in Quirigua. During the life of the project all TSRs trained were offered employment by the MOH. However, after AID funds stopped, the prospects for employment in MOH were limited since the MOH did not expand the available positions in accord with the number of continuing graduates. Although most TSRs have found alternate employment in other institutions, often being utilized in other AID projects, there is concern that the system cannot absorb the continuing production of this human resource. Responding to this concern the MOH has suspended TSR training since 1984; however it is expected to renew classes in 1988. Again, TSR sustainability is the exception that proves the rule that training programs with good prospects for employment are more likely to be sustained.

Technical Assistance

Projects in which the technical assistance team successfully established Guatemalan counterpart capacity would have put in place the human resources necessary to maintain project activities. Two aspects of technical assistance were expected to contribute to the success of establishing counterpart capacity: larger sized technical assistance teams and long-term TA (or intermittent short-term TA over a long period), both of which might provide more opportunity for training counterparts.

The SCISP period was a period of long term technical assistance in malaria, water and sanitation, and health services projects. By most reports this technical assistance was very successful in developing capable counterpart capacity. It is unclear whether there was a large team throughout the period, however, there was a permanent core team and many short term consultants were periodically brought in.

Most subsequent projects in these areas, including the TSR program, received continuing short term technical assistance, but did not have a long-term AID-supported technical assistance presence. In many cases, other donors, especially PAHO, provided long-term technical assistance in vertical institutions, such as SNEM or INFOM, that implemented AID projects. Since the MOH tends to be fragmented by different donor programs, it is unlikely that TA from other donors would offer significant support to AID projects in the MOH.

INCAP has provided significant long-term technical assistance in nutrition planning and currently is coordinating Child Survival technical assistance through the Division of Maternal and Child Health in the MOH. In the first case, the long-term technical assistance did not make nutrition planning particularly sustainable. The current activities cannot yet be evaluated in terms of sustainability.

Recently, Guatemala has tended to resist technical assistance and has forced several consultants from PAHO and AID to leave the country. The charge was that the consultants were taking too active a role in implementation. Such a response by the government has inhibited the present provision of technical assistance; however, its impact on project sustainability is yet to be determined.

The evidence on technical assistance suggests that technical assistance that is either long-term as in the SCISP period or is periodic over a long period is conducive to sustainability.

Appropriate Technology

In this section we consider not only whether a project had technology that is considered universally more appropriate, but also the appropriateness of the technology for the specific Guatemalan context. A case of the former is the technology of malaria eradication, which has subsequently been judged to have been inappropriate. By contrast, latrines which might be appropriate in ladino communities might be inappropriate in indian communities.

While this issue is highly debated, other types of technology which at times have been considered inappropriate include: nutrition planning, TSRs, some types of contraceptive methods, and hospitals. As this list suggests, it is difficult to determine the appropriateness of technology and the definition of what is considered appropriate can change over time.

While our cases are suggestive that the most inappropriate technologies might damage a project, it is not at all clear that even highly inappropriate technologies -- e.g. malaria eradication -- prevented the continuation of programs.

Type of Project

As noted earlier, there was a tendency for three types of projects -- health services, water and sanitation, and malaria --to be continued after AID funding ceased, while others -- family planning and INCAP nutrition projects -- were less likely to be sustained. Throughout this analysis, we have tried to analyze all types in terms of their other project characteristics. However, we expected that there may be some specific characteristic -- distinct from the other project characteristics we have identified -- that might be the decisive factor in determining sustainability.

Since health services, water and sanitation, and nutrition projects clearly had both sustained and unsustained projects, it is unlikely that these project types are inherently more sustainable. On the basis of our study of Honduras, where malaria projects were unsustained, it is clear that malaria projects are also not inherently more sustainable.

On the other hand family planning projects, both in Guatemala and Honduras, were not sustainable. While there are important exceptions to this generalization, there may be inherent difficulties in sustaining this type of project.

Community Participation

We expected that projects which successfully promoted significant levels of community participation and responded to community-defined demands would be more likely to be sustained. An assumption of this hypothesis is that community demands are considered in decisions to continue project activities. In addition, projects which engage meaningful community participation might be more effectively implemented and more likely to generate benefits.

Projects which included some degree of community participation were: TSRs, rural water and sanitation projects (except those of the SCISP period), malaria projects, SINAPS, and mobile units. Projects which did not have community participation, including family planning, Roosevelt Hospital, and INFOM water and sanitation projects, were both sustained and unsustained. As these lists suggest, community participation did not guarantee sustainability.

Project Effectiveness

Effective projects were defined as those with a reputation for achieving expected goals and objectives with a relatively efficient use of resources. It was expected that such projects would be more sustained than projects which were deemed to be ineffective.

By reputation, projects which were seen as more effective included: the malaria program, water and sanitation, fortification of corn and sugar, SINAPS and the Roosevelt Hospital, and APROFAM's family planning program. Projects which have been seen as less effective have included: MOH family planning programs and nutrition planning. In part because of their failure to be well integrated into the MOH, and not because of their well-regarded training program, the TSRs are seen as only moderately effective.

It was clear that projects which had a reputation for effectiveness were more likely to be sustained.

CONCLUSIONS

There is clear evidence that significant activities and benefits from the U.S. supported health projects in Guatemala over the last forty-five years have been sustained. This evaluation has shown that some contextual factors and project characteristics were related to project sustainability.

Contextual Factors

Contextual factors which appear to be most important for project sustainability were:

1. National Commitment: Projects which pursued goals which were priority goals of the national government and for which there was general consensus among significant groups in the health sector were likely to be sustained.

2. Characteristics of Implementing Institution: Implementing institutions which were fragmented, had low skill levels, and/or had conflicting organizational goals, were less likely to implement sustainable projects.

3. Socio-cultural Factors: Ethnic differences between ladino and indian communities appear to have limited the sustainability of some projects -- latrines and family planning. Projects such as the TSRs which took cultural differences into account were more likely to be sustained.

The other contextual factors we examined (natural disasters, political factors, bilateral relations, economic changes, private sector and donor coordination) either were not sufficiently related to sustainability or did not have sufficient variation to provide evidence of their impact on sustainability.

5.2 Project Characteristics

Project Characteristics which were important for sustainability were:

1. Project Effectiveness: Projects which had a reputation for effectively and efficiently achieving appropriate health goals were more likely to be sustained.

2. Institutional and Managerial Characteristics: Vertically organized projects were less likely to be sustained than those which are integrated into the normal administrative structure of the implementing agency. Projects with stable and highly qualified management both within the implementing agency and from AID were more likely to be sustained.

3. Financial Characteristics: Projects which provide for progressive absorption of recurrent project costs by the national budget were more likely to be sustained.

4. Content Aspects: Projects which provided significant training at either the professional or para-professional levels were likely to be sustained -- especially if there are good prospects of employment for the graduates. Projects with enduring technical assistance were also more likely to be sustained.

5. Project Negotiation: Projects which were negotiated in a mutually respectful process in which a consensus over goals, activities and implementing plans is established were more likely to be sustained than those which were not negotiated in such a process and which appeared to be imposed by AID.

The other characteristics of project financing (foreign exchange demand, substitution demand, cost recovery and cost effectiveness); project content (design, appropriate technology) and community participation did not appear to be as important for sustainability as were the other project characteristics.

5.3 Policy Implications

Central conclusions of this study tend to confirm that four areas are of particular importance in the design and implementation of sustainable projects:

1. Respect national priorities and national involvement in project design.

2. Enhance the administrative effectiveness and capacity of the implementing agencies and integrate project activities into those institutions.

3. Design project financing to encourage national absorption of recurrent project costs during the life of the project.

4. Design and implement projects to assure that they will be viewed as effectively achieving their goals and as making efficient use of resources.

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ANNEX A: METHODOLOGY

OBJECTIVE OF THE CDIE SERIES OF HISTORICAL EVALUATIONS OF SUSTAINABILITY OF HEALTH SECTOR PROJECTS

The final objective of CDIE's series of comparative case studies of project sustainability is to provide information and materials which will help assure that project conceptualization, selection, design, funding, implementation, evaluation and adjustment in the health sector can be carried out in ways which increase the probability that the desired benefits of the projects will be maintained after outside funding has been completed.

In the process of this series of evaluations, one sub-objective is the development of a practical methodology for assessing factors which have been associated with post-project continuation of activities and benefits of past projects.

CONCEPTUAL APPROACH OF THE GUATEMALA STUDY

The sustainability study in Guatemala was conceptualized and carried out as a set of parallel retrospective case studies of U.S.-supported projects in the health sector. The health sector was defined to include health services, family planning, malaria, nutrition, and water and sanitation. The projects to be studied were ones which had received U.S.-Government funding, but for which that funding had ended by August, 1984 (three years prior to initiation of the study team's field work in Guatemala).

The series of CDIE studies utilizes the conceptual framework of systems analysis. The Guatemala study took a systems approach in that the consultants designed, carried out and interpreted their case studies within an overall view of the health system in Guatemala and especially of the development, delivery and use of services in the health sector. Each project was examined as providing inputs into that health system and outputs from the system which imrpoved health levels and that could be identified as having been the result of those project inputs were considered to have been benefits of the project. (Blumenfeld, 1986)

A central objective of the Guatemala study was to take as a point of departure the methodology developed in the prior study of Honduras (Bossert, et. al., 1987) and to develop further this methodology. The Honduras study itself was based on prior conceptual work presented in the reports of Blumenfeld (1986), Buzzard (1986), Blumenfeld and Pipp (1985), Godiksen (1986), Leiberson (1986) and others. It was recognized that this is a pioneering effort that required continuing modification of the

methodology as the initial research efforts evolve. It was also expected that the methodology should not diverge so much from the Honduras project so as to prevent subsequent comparative analysis.

The Honduras evaluation of sustainability identified nine major factors that were hypothesized to be related to sustainability: national commitment to project goals, project negotiation process, institutional organization of theproject, financing, technical assistance, donor coordination, training, community participation and project effectiveness. These nine factors were examined in six cases: three which were sustained and three which were unsustained. For each factor a set of hypotheses, based on prior reviews of the literature and prior discussions with AID officials and other consultants, was developed. Efforts in Honduras explored the feasibility of gathering appropriate data for testing these hypotheses.

The Honduras project also refined the definition of sustainability to emphasize an evaluation of what was sustained in terms of project activities and the benefits that these activities would produce. The study differentiated between those project outputs that were considered to be immediate outputs of the project (trained personnel, wells and latrines put in place during the life of the project) and outputs that would replicate the immediate outputs (the school which trained the personnel, or the water and sanitation agency that constructs wells). In addition, the study considered the sources of funding for the continued activities. National funding was considered to be important but not essential for sustainability. If other donors made funds available for the replication of AID project activities, this output was still considered to be sustained. This distinction was particularly important for water projects since there has been a continuous stream of international funding for such projects.

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

VARIABLES STUDIED

Dependent Variables

A major advance was made in the development of a more precise and consistent definition of the concept of sustainability, the dependent variable in the study. (In Spanish a more appropriate term for the dependent variable was "continuaci n") Sustainability was defined as the continuation of at least some significant project activities and benefits at least three years after the end of U.S. Government support for the project.

As in the Honduras evaluation, each consultant on the team was responsible for the examination of sustainability of a particular project type: health services, water and sanitation, malaria, family planning, and nutrition. As the investigation progressed it became clear that the definition of what constituted continuation and the criteria for determination of continuation necessarily varied from one type of project to another and that each consultant would have to explain precisely what they considered sustained for their particular health projects. Each of the case studies reflects a further effort to be precise about what criteria was used to define projects as sustained.

At the general level, however, there was insufficient time to develop a clear consensus over how to establish broader criteria to establish consistent analyses across project types. Most projects had some elements which were continued and others which were not. Some consultants were reluctant to make clear judgements as to the sustainability of a project in the face of conflicting evidence. This lack of clear definition led to some difficulties in drawing general conclusions. In the final analysis it was decided that continuation of at least one significant element or aspect of a project would be taken as the general criterion for sustainability.

In an attempt to develop a more complex determination of the dependent variable, the team decided to distinguish several elements of the dependent variable. In the health sector, projects themselves are not intended to be sustained. What needs to continue, after completion of U.S. Government assistance to a project, is the use of information, systems and practices which have been demonstrated to be beneficial. This implies that studies of sustainability should focus on potentially sustainable elements of projects and systems, such as activities and benefits.

The number and heterogeneity of elements and objectives included in projects in the health sector makes it imperative to consider those elements, rather than simply trying to consider continuation of "the project". Those elements also cut across projects; considering them in output/sustainedness measures can therefore help clarify relationships among clusters or series of projects. Such clarification, in turn, can help resolve the problems associated with assessment of the continuation of clusters of related projects and of individual projects with objectives and components which shift over time. Useful criteria for defining clusters or series of projects or activities could include, for example: similar approaches, technologies or technical characteristics; similar target groups; similar resource demands; or similar expected effects. (For example, continuable or continued aspects of projects could be classified, as suggested in the Honduras study report, as to whether they are directly beneficial within the system or whether they themselves serve to replicate other beneficial

aspects: trained personnel, for example, vs training institutions.) Such criteria will be important if international and inter-regional comparisons or analyses are to be attempted.

A wide variety of types of project elements and activities potentially could continue after cessation of U.S. support for a health services development project. It is therefore useful to consider these elements and activities within several categories (personnel, physical facilities, and system characteristics), for purposes of analysis and discussion. It appears that the probability of continuation of an element or activity of a project depends partly on these categories. It is also likely that there are differences among these categories in the effects and importance of the various contextual factors and project characteristics hypothesized to influence the continuation of project elements or activities.

The categories of potentially sustainable project elements and activities listed below were found to be useful by several of the consultants in the Guatemala study. They provide a complex check list that assist the analyst to consider the potential outputs of each project and evaluate each component separately. However, there was insufficient time for the team to examine the different relationships between these elements and the independent variables. This is an important area for further development in subsequent evaluations.

Types of Project Elements or Activities Which Could Potentially have Continued

a. Specific types of <u>trained personnel</u> (trained through overseas participant training, formal in-country training, and on-the-job training), their employment and activities, and training programs

b. Personnel
   - Working in health
   - Working in the project implementing institution
   - Working in the project implementing institution in positions and with activities appropriate in terms of their specific training
   - Working in the project implementing institution and receiving support sufficient to function as planned

d. <u>Physical Infrastructure</u>
   - Existence
   - Maintenance
   - Use by implementing agency or other institution for original purpose or for other purpose in keeping with the project or sector objectives

e. System Characteristics

Institutions and Subsystems (including: Continued functioning of training programs established under (or as modified through) the project(s)
Organizational structures
System capacities
Functions (Activities & Effectiveness/Efficiency)
Resource Allocations

Independent Variables

The second major area of methodological advance in this evaluation was the further refinement of the independent variables, begining with the nine identified in the Honduras study.

The first major change was the development of a distinction between those variables that were considered to be contextual and less controllable by project designers and managers and those project characteristics which were more manipulable by project designers and managers. These distinctions allow for a more complex analysis of each type of variable.

Second, the team developed a larger and more complex set of variables than the nine utilized in the Honduras study. The larger set was considered more appropriate for evaluating project continuation than the limited number of variables that had been used in the earlier study. The risk of this approach, of course, is that the analysis would become too complex to be useful to project managers and designers who often seek short check lists to assist in their practical decision-making situations. It was felt, however, that the extended set would be a more appropriate basis for drawing conclusions that then could be summarized and simplified on the basis of empirical material at a later date.

I. Context factors

(1) Natural disasters
(2) Political context
(3) Bilateral relations
(4) Socio-cultural context
(5) Economic context
(6) Private sector and PVOs
(7) Implementing institution
  (a) High officials
  (b) Centralization
  (c) Integration
  (d) Skill levels of personnel
  (e) Goal conflicts
  (f) Competition among PVOs
(8) International donor policies and coordination
(9) National commitment (consensus)

II. Project Characteristics

(1) Negotiation process
(2) Implementing institution and its management
  (a) Vertical project design
  (b) Management leadership
  (c) Administrative systems
(3) Financing
  (a) National absorption of costs
  (b) Foreign exchange
  (c) Demand substitution
  (d) Cost recovery
  (e) Cost-effectiveness
(4) Content aspects
  (a) Project design
  (b) Training
  (c) Technical assistance
  (d) Appropriate technology
(5) Community participation
(6) Project effectiveness

HYPOTHESES

The hypotheses considered in the case studies were formulated on the basis of the set of hypotheses used in the previous CDIE sustainability study in Honduras, modified on the basis of the Honduras experience and of very extensive team discussions throughout the first weeks of work in Guatemala. They are presented in Table 1, in a format intended to facilitate understanding and discussing them.

The table distinguishes the hypothesized continuity-enhancing effects from the continuity-inhibiting effects of an independent variable, reflecting the emphasis that emerged from the team's discussions and the working documents.

TABLE 1

SUMMARY LIST OF HYPOTHESES

The factors listed below were hypothesized to be related to project continuation three years after completion of U.S. Government funding. Those listed on the left side of the page were hypothesized to be associated with decreased likelihood of project continuation. Those listed on the right were hypothesized to be associated with increased likelihood of project continuation. The list of factors has been derived from hypotheses developed by the team during the first weeks of the fieldwork based on previous work on sustainability issues and other Guatemala CDIE project documents.

Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation

1. CONTEXTUAL FACTORS

1.1 Natural Disasters

Occurrence of natural disasters (presumed negative influence, based on statement in summary paper)

1.2 Political Factors

GUATEMALAN POLITICS

Regime instability.
Low state capacity.
Military regimes.
Civilian Regimes.
Low idelogical commitment to the welfare of the poor.
The presence of strong interest groups opposed to redistribution of resources in the health sector or to project objectives.

1.3 Bilateral Factors

Difficult relations between the U.S. and Guatemala.	Good relations between the U.S. and Guatemala.

Changes in U.S. Government development policies in the health sector.

1.4 Socio-Cultural Context

Marked socio-cultural cleavages.
Marked urban-rural inequality.
Marked sexual inequalities.

Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation
1.5 Economic Factors	
AID financing of project ended in a period of economic growth.	
AID financing of project ended in a period of public sector growth.	
AID financing of project ended in a period of growth of the MOH share of total GOG budget.	
1.6 Private Sector and PVO's	
Private sector opposition or competition with project goals and objectives.	Private sector facilitating project goals or objectives.
PVO's available to implement project activities.	
1.7 Implementing Institution	
Rapid turnover of top officials (and "low quality", in drafts up to 29AUG87)	
Centralization of decision making.	
Fragmentation of authority and responsibility (relatively vertical, program-determined sub-units, with little interaction, coordination, and communication among them).	
Low skill levels of personnel outside of the project, but on whom the projects's implementation depends.	
Personnel decisions based on political or patronage considerations.	Personnel decisions based on skills, motivation, and job description.
Conflicts between organizational goals and project objectives.	
For PVO's, the existence of competition among PVO's for funds or beneficiaries.	

1.8 Other International Donors

Project elements and activities are congruent with health sector policies and activities promoted by international health agencies and donors at time of continuation decisions.

Availability of donor funds for health projects in the country at the time of project continuation decisions.

Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation
Coordination among donors to avoid excessive concentration of donor resources in one area of projects.	
Coordination among donors to provide ongoing funding of project activities.	

1.9 National Commitment

Consensus among the most important interest groups and decision makers in the health sector that the goals and objectives are a national priority.

2. PROJECT CHARACTERISTICS

2.1 Negotiation Process

Project designed with little Guatemalan participation and appearing to be imposed by AID	Project negotiations involving mutual respect and leading to consensus regarding project goals, objectives and implementation plans.

2.2 Institutional and Administrative Characteristics

2.2.1 Vertical/Horizontal

Projects organized with vertical implementing units, especially if receiving funds and additional salaries not recieved for similar services not receiving AID funds.	Projects integrated into existing national institutions.

2.2.2 Administrative Leadership

Projects with stable and well-qualified leadership in both AID and Guatemalan counterparts.	Projects with high turnover among leaders and with incompetent leaders.

2.2.3 Administrative Systems and Administrative Training

Projects which do not improve the administrative systems of the executing agency and which provide administrative training.	Projects which do improve the administrative systems of the executing agency and which provide adminstrative training
Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation

2.3 Financing

2.3.1 National Absorption

Projects receiving high levels of external funding throughout project lifetime.	Projects for which recurrent costs are gradually absorbed by the national budget.

2.3.2 Foreign exchange

Projects imposing repeated and long-term demands for large amounts of foreign exchange.	

2.3.3 Demand Substitution

Projects requiring large changes in national budgetary priorities.	Projects not requiring large changes in national budgetary priorities.

2.3.4 Cost Recovery

	Projects with capacity to recover a significant portion of their costs.

2.3.5 Cost-effectiveness

Projects with high costs in relation to the probable effectiveness of their activities.	Projects which use their resources more efficiently.

2.4 Content Aspects

2.4.1 Project Design

Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation
	Projects with clearly defined goals and objectives.
	Projects designed with a long implementation period. Projects with low total budgets.
	Projects which produce visible benefits and generate significant demand among beneficiaries.
	Project design provides for ethnic and sexual balance in all aspects of project implementation.

2.4.2 Training

Projects including technical training (with the training expected to be more likely to continue than other aspects of the project, especially if personnel trained during the project had high likelihood of post-training employment).

2.4.3 Incentives for Personnel

Projects providing for salary and mobility incentives for those working in the project activities after the project terminates.

2.4.4 Supplies and Logistics

Projects strengthening the supplies and logistic systems necessary to support project activities.

2.4.5 Technical Assistance

Project's T.A. team establishes good capability among counterparts.

Project includes a large T.A. team.

Project includes long-term T.A. (or repeated short-term T.A. over a long period of time).

2.4.6 Appropriate technology

Project includes technology generally considered to be appropriate technology".

Project includes inappro-
Project includes technology
priate technology.which is specifically appropriate in the Guatemalan context.

Factors hypothetically associated with decreased likelihood of project continuation	Factors hypothetically associated with increased likelihood of project continuation

2.4.7 Type of Project

Family planning projects. Nutrition projects.	Health services projects. Water and sanitation projects. Malaria projects.

2.5 Community Participation

Projects which have successfully stimulated considerable levels of community participation and which have responded to community-defined requests.

2.6 Effectiveness

Projects which achieved a reputation for achieving objectives, with relatively effective use of project resources.

INFORMATION SOURCES AND METHODS OF COLLECTION AND VERIFICATION

The principal methods of obtaining information used in the study were document review and selective interviewing. Internal reviews by team members and team discussions helped cross-verify information. The team developed a comprehensive list of interview questions to serve as a guide and check-list in interviews. (Table 3) Interviews, however, were conducted in a manner to probe the areas of expertise and knowledge of the informant, rather than pursue a systematic interview schedule. The team leader has had extensive interview experience in this type of investigation and in Guatemala. Interview techniques were discussed by the team and the team leader observed some interviews of almost all team members.

Two of the North American team members (the team leader and the public health physician) had extensive relevant experience in Guatemala, and one of the family planning consultants had monitored Guatemalan projects for AID. The three Guatemalan physicians on the team have decades of relevant experience in the Ministry of Health and in international agencies. Information and contacts which those team members already had prior to the study was very important to its development. The nurse educator who carried out the studies of the Present Working Conditions of Guatemala's Rural Health Technicians (which involved the responses of 274 of the technicians to a survey and personal interviews with 46 technicians in the field and 7 MOH officials involved in the rural health program) has extensive experience in health and health manpower work in Central America. The team's economist worked closely with a former GOG official who has held high level positions in several areas important to the economic analysis of the projects and their context.

An information specialist on contract to CDIE arranged for several computerized searches of relevant bibliographic data bases, obtained bibliographic materials on the basis of those searches, and worked with team members in Washington and (on a planning trip in July, 1987) Guatemala to obtain additional documents. Team members also had access to AID and ROCAP files, to the Ministry of Health library, and to the libraries and files of some of the interviewees, in addition to any relevant documents in each team member's own files. The principal documents used by the team were those of AID and predecessor agencies (Project Papers, Project Reports, Project Evaluations, Audits, etc.), Government of Guatemala documents, and reports of other donor agencies.

Interviews were carried out by each team member to obtain and verify information and to discuss possible interpretations of information obtained. A list of interviewees is attached to the overall report of the Guatemala study. Interviewees were chosen from among accessible persons whom team members had

reason to believe had played roles in projects to be studied or had knowledge of the projects or of their contexts, effects, and continuation. Interviews were carried out both in the U.S. and in Guatemala. Most were carried out in person with a single interviewee, but a few were by telephone and others in small groups. The interview guide (Table 3), in the form of an extensive list of questions related to the hypotheses, was developed in the first weeks of the team's work in Guatemala.

TABLE 3

INTERVIEW QUESTION GUIDE

Sustainability Study

I. CONTEXTUAL FACTORS

A. Natural Disasters

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

B. Political Factors

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

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

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

C. Bilateral Factors

1. Were you aware of any way in which the general state of relations between the US and Guatemala influenced the evolution and prospects for sustaining the program in xx?

2. Were there any significant changes in the project that were explained in terms of shifts in AID policy or funding? Did they affect prospects for continuation of the project after AID funding ended?

3. Did you ever feel that changes of mission director or the project officer or other mission level factors affected the program in xx and its possible continuation?

D. Socio-Cultural

1. Did social inequalities (ethnic, class, sex) influence the effectiveness and continuation of the proejct activities and benefits?

2. Did economic or regional inequalities influence the project?

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

E. Economic

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

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

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

4. Were the public sector in general and the MOH in particular expanding, holding their own, or declining during this period?

5. Were budgetary priorities within the MOH favorable to project activities?

F. Private Sector

1. Did activities in the private sector in health (doctors, pharmacies, HMO's, etc.) affect project activities and benefits? Could the project have taken the private sector into account more effectively?

2. Were PVO's available for the project activities?

G. Implementing Institution

1. In your opinion do policy, personnel or organizational changes at the top levels of the Ministerio de Salud Publica affect the initiation, implementation and continuation of xx projects supported by AID? Would you give me some examples?

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

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

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

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

6. Did the implementing agency have access to sufficently trained personnel to support activities on which the project depends?

7. Were other goals and objectives of the implementing agency (MOH or pvo) in conflict with the goals and objectives of the project?

8. FOR PVO: Are ther many PVO's competing for the same sources of funds and for the same beneficiaries?

H. International Donors

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

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

I. National Commitment

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

2. Were there major conflicts, debates, etc.?

3. How widespread was project support or opposition?

II. PROJECT CHARACTERISTICS

A. Project Negotiation Process

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

2. Who participated in the process?

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

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

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

B. Institutional and Managerial Characteristics

1. Vertical vs. Horizontal Design

a. How was the project administered? Did it have its own chain of authority or was it under the Director General (Regional Jefe, etc.) ?

b. Could the project have been better integrated into the MOH?

c. Were communication linkages open between project officials and other officials in the MOH?

d. Did the project generate jealousies within the MOH?

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

2. Managerial Leadership

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

b. Did changes of leadership affect the project?

c. Were project leaders effective managers and promotors of their projects?

3. Administrative Systems and Training

a. Did the project contribute to administrative improvements in the MOH (or other agency)?

b. What happened to people who were trained overseas?

c. Was training effective?

C. Financing

1. National Absorbtion of Project Costs

a. What percentage of total recurrent costs had the MOH absorbed by the end of the project?

b. Were there any differences in the absorbtion rate for different kinds of cost categories (salaried positions, materials, equipment, training)?

c. Were alternate sources of funding, such as other donors, beneficiaries, other levels of government, or PVO's anticipated as sources of continuing funding after the end of the project?

2. Foreign Exchange Component

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

b. Were there no local or regional sources for these imports or is importation an institutional requirement?

3. Substitution Demand

a. Would the project reduce the funding available for other MOH programs, such as curative care?

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

4. Cost Recovery

a. Did the project include means of recovering costs through quotas or other charges?

5. Cost Effectiveness

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

D. Content Aspects

1. Project Design

a. How clearly defined were project goals and activities?

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

c. Did project design provide for ethnic and sexual balance in all aspects of project implementation?

2. Training

a. What type of training program (curriculum, OJT, long or short courses, and size) was included in the project? Was it continued after the project funds ceased? How has it changed over time?

b. Were there sufficient salaried positions for the newly trained workers to assume after their courses?

c. Were beneficiaries trained in project activities?

3. Personnel Incentives

a. Did the project provide for salary and mobility incentives for those working in the project activities after the project was terminated?

4. Supplies and Logistics

a. Did the project strengthen the supplies and logistic system necessary to support project activities?

4. Technical Assistance

a. What was the role, size and duration of the technical assistance in the project?

b. Were Guatemalan counterparts trained to take over project activities after the TA team left?

c. Was technical assistance acceptable to the national government during project negotiation and implementation, or was it imposed by AID?

5. Appropriate Technology

a. Was (specific technology) inappropriate for achieving project goals in Guatemala?

E. Community Participation

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

F. Project Effectiveness

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

2. What were the major achievements and major failures of the project?

TABLE 4

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ASSESSED IMPACT ON SUSTAINABILITY
(Independent of Hypothesized Relationship)

Final Year	Area/Project	Sus-tained?	CONTEXTUAL FACTORS: Nat Dis	Pol Sit	Bil Rel	Soc Cul	Eco Sit	Priv 1	Priv 2	Implementing Unit 1	2	3	4	5	6	Don Coo	Nat Com	PROJECT CHARACTERISTICS: Neg Pro	Institute 1	2	3	Financing 1	2	3	4	5	Content 1	2	3	4	Com Par	Pro Eff	ROW TOTALS: +	-	0	N
	HEALTH SERVICES																																			
1980	Rural Health/TSR	Yes	+	-	0	+	-	-	+	-	-	-	-	-	0	+	-	+	-	+	-	+	0	+	N	+	+	+	N	+	+	+	14	11	3	2
1960	Roosevelt Hospital	Yes	N	+	0	+	0	0	0	-	-	-	+	+	0	0	+	+	+	+	+	+	-	+	N	-	+	+	+	-	0	+	15	6	7	2
1966	SCISP	Yes	N	0	0	0	0	0	0	-	-	-	+	-	0	0	+	+	+	+	+	+	0	0	N	+	-	+	+	+	0	+	12	5	11	2
1969	Mobile Units	No	N	0	0	-	+	0	0	-	-	-	-	-	0	0	-	-	-	N	-	-	-	0	+	-	+	N	-	-	+	-	4	16	7	3
1983	SINAPS/PRINAPS/CAPSVO	No	N	-	0	-	-	-	+	-	-	-	-	-	0	+	-	+	-	+	-	-	0	-	N	+	+	+	+	+	+	+	11	14	3	2
	WATER & SANITATION																																			
1966	Urban SCISP	Yes	N	0	0	+	+	0	0	+	-	+	+	+	0	+	+	+	+	+	+	+	0	0	+	N	+	+	+	+	-	+	19	2	7	2
197?	Urban INFOM	Yes	+	0	0	+	+	0	0	+	-	+	+	+	0	+	+	+	+	+	+	+	0	0	+	N	+	-	+	+	-	+	19	3	7	1
--	Recent Rural	Yes	N	0	0	+	-	0	+	+	-	+	+	+	+	+	+	+	+	+	-	+	0	0	+	N	+	-	+	+	+	+	19	4	5	2
1960	Rural SCISP	No	N	0	0	+	+	0	0	-	-	+	-	-	0	+	+	+	+	N	+	+	0	0	+	N	+	+	+	+	-	+	15	5	7	3
--	Recent MOH	No	N	0	0	+	-	0	0	-	-	-	-	-	0	+	+	+	+	-	-	+	0	0	+	N	-	-	-	+	+	+	10	11	7	2
--	All Latrines	No	N	0	0	-	N	0	+	-	-	N	-	-	0	+	0	N	N	N	-	+	0	0	0	N	+	-	N	-	-	-	4	10	8	8
1970	MALARIA	Yes	N	+	0	-	+	N	N	+	+	+	+	+	N	-	+	+	+	+	+	+	-	0	N	+	+	+	+	+	+	+	20	3	2	5
1976	FAMILY PLANNING	No	-	-	0	-	-	0	0	-	-	-	+	-	0	N	-	-	-	-	+	-	-	0	N	+	+	-	+	+	-	-	6	17	5	2
	NUTRITION																																			
1979	Sugar Fortification	Yes	N	-	0	0	-	-	0	-	0	N	+	-	0	N	-	+	+	+	-	+	-	0	+	+	+	0	+	+	-	+	11	9	7	3
1982	Corn Hybrid	Yes	N	0	0	0	-	+	0	N	0	N	+	-	0	N	0	-	+	+	-	+	0	0	+	+	-	0	+	+	-	+	10	6	10	4
1981	Nutrition Planning	No	N	0	0	0	-	0	0	-	-	-	+	-	0	N	0	+	-	+	-	+	0	0	0	-	-	-	+	-	-	-	5	13	10	2
	PL-480																																			
--	School Children	Yes	0	0	0	0	0	N	+	-	N	+	-	N	0	+	+	0	0	N	N	+	N	N	N	-	+	N	N	N	N	N	6	3	8	13
--	Food for Work	Yes	0	0	0	0	0	N	+	-	N	0	-	N	0	N	+	0	0	N	N	0	N	N	N	-	+	N	N	+	+	+	6	3	10	11
	COLUMN TOTALS: +		11	2	2	0	7	5	1	6	4	1	6	10	5	1	9	10	12	10	11	7	14	0	2	8	7	14	7	12	13	7	13	206	141	124	69
	-		7	1	4	0	5	8	3	0	13	13	8	8	11	0	1	5	3	5	2	9	3	5	1	0	5	4	6	2	4	8	4	141			
	0		0	2	12	18	6	4	11	11	0	2	1	0	0	16	3	3	2	2	0	0	1	11	13	2	0	0	2	0	0	2	0	124			
	N		0	13	0	0	0	1	3	1	1	2	3	0	2	1	5	0	1	1	5	2	0	2	2	8	6	0	3	4	1	1	1	69			
	PERCENT OF TESTABLE: +		40	11	0	39	29	7	35	24	6	40	56	31	6	69	56	71	59	85	44	78	0	13	80	58	78	47	86	76	41	76	44			
	-		20	22	0	28	47	20	0	76	81	53	44	69	0	8	28	18	29	15	56	17	31	6	0	42	22	40	14	24	47	24	30			
	0		40	67	100	33	24	73	65	0	13	7	0	0	94	23	17	12	12	0	0	6	69	81	20	0	0	13	0	0	12	0	26			

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

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CONCLUDING ANALYSIS

The final report consists of an overview analysis followed by seven annexes. The annexes include each of the five case studies, this document on the methodology, and a special examination of the economic and financial variables.

The overview report attempts to review the findings of the five case studies to draw general conclusions about the hypothesized relationships between each independent variable and the continuation of project activities and benefits.

The methodology used for drawing these conclusions was first to review each case carefully and balance the cases against each other. The process was primarily a complex judgement of the team leader, who had his judgements reviewed by the core team members and by the Guatemalan counterparts. A similar methodology was utilized in the Honduras evaluation.

As a means of elaborating the methodology, it was agreed that a more systematic and replicable methodology should be developed for this stage of the analysis, and that this more systematic approach should be the basis for the development of future studies.

In an attempt to move toward the development of such a methodology, the team prepared a matrix that crossed the separate projects with the independent variables.(Table 4)

[INSERT TABLE 4]

This table presents each of the projects down the left column and the variables (contextual factors and project characteristics) across the top row. (In this table there are two projects (PL480) that were researched by one menber of the team but were not written up for this final report. They are included here to give a fuller data base for this analysis). The variable numbers for "Implementing Unit", "Institute", "Financing" and "Content" refer to the separate hypotheses under each category -- see variable list in Table 2 of the Report.

Eleven projects had significant elements that were sustained, and seven had no significant continuation. The variables were then identified in terms of whether they had contributed positively or negatively to project sustainability, or whether they had no effect. In several cases the independent variable could not be tested for that particular case or there was insufficient information.

The table can best be read by reviewing the "Percent of Testable" rows at the bottom of the page. If we eliminate from the analysis all the variables for which there were "no effect" (0) was 40% or more. the remaining variables may be judged to have had some impact on sustainability.

Further analysis compared the pluses and minuses to the "Yes" and "No" judgements in the column "Sustained". (Table not presented here) If the pluses corresponded with the "Yes" and the minuses corresponded with "NO" then the plus or minus was circled and counted as a correct "hit". Hits for each variable column were then compared to total pluses or minuses to determine the success of each variable in predicting sustainability. Variables for which "hits" were over 70% of the total hits or misses were: Socio-Cultural; Implementing Unit # 3,4,5 (Integration, Skill Levels, Goal Conflict); National Commitment; Institute #1, 2 (Integration, Leadership); Finance #1 (Absorption); Content #3 (Technical Assistance); and Project Effectiveness.

The judgements presented in this Table 4 are tentative and reflect the evaluations of the team leader and three of the members of the team who were present at the end of the field work. It reflects their judgement about the importance of the variable for sustainability and not whether the hypothesized relation was confirmed or denied. It is clear that in the future this mentodology should be utilized from the begining of a project in order to develop consensus of all analysts on a quantative means of hypothesis testing.

Nevertheless, the tentative analysis presented in this table and the subesquent analysis of "hits" and "misses" was a useful supplement to the more qualitative judgements made by the original process. In many cases this method confirmed the original judgements, in others it forced a rethinking and reevaluation which corrected mistaken judgements. In other cases, the quantative judgements were rejected on the basis of stronger qualitative arguments.

The team felt that this analysis was not sufficiently developed during the course of this evaluation to have confidence in the conclusions of this analysis. Various means of assuring systematic judgements were suggested for the future analyses, including, group judgement techniques, scaling the dependent variable, and weighting the independent variables.

WORKSHOP

Team discussions and review by team members of some of the documents prepared by others helped verify and clarify the documents' information. At the end of the study, a one-day workshop was held to review and discuss the study's findings and implications. Project and workshop documents (approximately 165 pages) were distributed to invitees on the day before the workshop. A total of 43 persons participated in the workshop, distributed as follows:

Team members and support staff:
U.S. team members 4
Guatemalan public health counterparts 3
Collaborators in the Rural Health Technician and Economic studies 2
Workshop moderator1
Support and computation staff 3

Government of Guatemala officials, past and present (does not include the four Guatemalan team members) 17

USAID mission members 3

Representatives of other agencies and other persons with relevant backgrounds and past or present posts (excluding those counted as former GOG officials) 10

Total: 43

The workshop was held in a hotel conference facility in Antigua, Guatemala, a 45 minute drive from Guatemala City, on September 8, 1987. Workshop activities included introductions, a plenary overview of the purpose, methods and general findings of the Guatemala study, five parallel small group reviews of the five draft sub-sector reports, and (in a three hour afternoon plenary session) rapporteurs' presentation of the small groups findings, with discussion of the groups' conclusions and recommendations and of their implications for future development in Guatemala's health sector and for donor assistance in the sector.

REPORT DEVELOPMENT AND REVISION

Iterative Drafts In-country

The four core members of the U.S. team were able to remain in Guatemala until the workshop described above. Three other team members who came for two weeks each to develop the family planning and water and sanitation cases left country in the weeks preceding the workshop, having completed drafts of their reports before departure. Several of those reports were edited by the team leader for review at the workshop, taking into consideration additional comments provided by their authors by letter, post-departure revision (sent to Guatemala), or telephone. Drafts by those team members who were able to remain

were completed in Guatemala prior to the workshop and reviewed by the team leader, who prepared a draft summary document for the workshop. This draft was reviewed and modified by the core team members.

On the day following the workshop, the Guatemalan and remaining U.S. members of the team and the workshop moderator met to review the workshops implications, consider the conclusions given in the pre-workshop draft project summary document and the draft executive summary in light of the workshop, and to review preliminary tabulations of findings in Table 4. They also discussed finalization and further review of the reports.

An AID-Washington staff review of the reports on the study is scheduled at CDIE in Rosslyn, Virginia, on September 29, 1987. The project manager, the team leader, the public health physician, the economist, and probably several other team members will participate in the review meeting. That review was followed by revision and editing of the final report.

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ANNEX B: HEALTH SERVICE CASE STUDY

OVERVIEW OF HEALTH AND HEALTH SERVICES DEVELOPMENT IN GUATEMALA

Health conditions for most of the people of Guatemala are worse than in most other countries in Latin America, and substantially worse than in other countries with similar income levels. In spite of a real per capita GNP of $1,120 in 1983 (World Bank Sector Review, July, 1986 (WBSR86)), the infant mortality rate is estimated to be 82-110 per 1,000 live births nationwide (recent survey estimates) and to reach 150 per 1,000 in some rural areas. Conditions are poorest among the socially, linguistically, and economically marginalized Indian population.

Approximately 4.4 million people, or almost 70% of the MOH's constituency, lack regular access to health care, most of them in rural areas. In 1983, the poor rural areas had an average of 0.1 ambulatory consultations per capita in MOH facilities, one tenth of the urban ratio. In the same year, infants and pregnant or lactating mothers (which include the groups most at risk, especially with regard to preventable or resolvable health problems), received only 1.3 outpatient consultations per capita, less than one fifth the levels in more efficient systems elsewhere. (WBSR86)

MOH spending is extremely biased toward hospitals (3/4 of total MOH operating expenses in 1980-84 (WBSR86). Due to lack of incentives and to cultural factors, physicians and other health personnel, public and private, generally avoid working in rural areas and (to a lesser extent) in marginal urban areas.

In the last 15 to 20 years Ministry of Health programs have given the MOH a network of health centers and posts and a cadre of specially trained rural health personnel and volunteers. With adequate support, supervision and management, those workers could greatly improve rural (and therefore national) health. However, administrative systems in the MOH continue to suffer from over-centralization and from the problems of multiple vertical programs. Even within vertical project structures claimed to facilitate project administration, it is difficult to obtain travel funds and per diem and logistics and supply systems are not functioning adequately.

PRIOR CONDITIONS AND PROJECTS INPUTS

U.S.-supported projects have provided approximately $25 million to date for health sector activities in Guatemala, approximately one half of which was expended in health services sector projects (See Report: Table 1). Those funds have been important to the MOH for capital investments, system development, and demonstrational operations. However, U.S.

technical collaboration (along with that of PAHO, UNICEF, and others) has also played an important role in health services development in Guatemala. As more Guatemalans acquired training and experience in public health and in health services planning and management, the roles of foreign technical personnel gradually and appropriately shifted from initial emphasis on direct involvement and responsibility to advisory functions and administration of the donor or lender side of assistance.

The U.S. has supported the development of health services through several series of projects in Guatemala since 1942 (See Table 1). U.S. assistance in health began with efforts to help the GOG control typhus, malaria and other specific diseases, develop public health education services, construct a major urban hospital (Roosevelt Hospital), and improve rural water supplies and sanitation in the 1940's.

[NOTE: CONDENSE THIS TABLE TO FIT STANDARD PAGE]

Table 1

CHRONOGRAM OF HEALTH SERVICES DEVELOPMENT PROJECTS WITH U.S. SUPPORT

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1                 1                   1                   1                   1
9                 9                   9                   9                   9
4 4 4 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 7 7 7 7 7 7 7 7 7 7 8 8 8 8 8 8 8 8
2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7

.....................................
:ROOSEVELT HOSPITAL CONSTRUCTION ETC:
:....................................:
.............              .......................
:   SCISP   :              :SCISP & T.A. TO MOH  :
:...........:              :.....................:
                                          ...........
                                          :MOBILE RH:
                                          :.........:

                                                (Population & Rural Hlth)
                                                        ...................
                                                        :  RURAL  HEALTH  :       (Child
                                                        :.................:        Survi-
                                                                        ........... val-|
                                                                        :SINAPSetc:
                                                                        :.........:
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In the 1950's, work on Roosevelt Hospital and construction of the National Nursing School continued throughout the Arbenz regime in spite of increasing official U.S. hostility to that regime. After the 1954 invasion, major new programs were added to support and improve health services delivery and management (still with a focus on Roosevelt Hospital) and to complement other new support in areas such as Water and Sanitation and renewed efforts in malaria. U.S. technical assistance for MOH and Roosevelt Hospital operations and management continued until the mid-1960's, when support shifted to a program of vehicle-based mobile health units for rural areas (1964-69) and to a Population and Rural Health Project (1967-79). The latter primarily supported the establishment of APROFAM (Guatemala's private family planning association, still the recipient of AID funds).

Throughout the 1970's (years of growing rural health activity in Central America), AID provided support for the new MOH program intended to develop a pyramidal system of preventive and curative health services, using trained volunteers (Rural Health Promoters) and a new type of paid mid-level worker, the Rural Health Technician, with two years of training. AID's support for development of that rural health services system was provided through two health loans under which an institute for the training of Rural Health Technicians (TSRs) was established and 349 TSRs were trained by the end of the decade (with another 310 trained so far in the 1980's with wholly GOG funding). An AID grant also funded a Rural Health System Evaluation Project in 1976-79. In the 1980's, AID funded a series of public (PRINAPS, SINAPS and CAPSVO) and private sector (Integrated Rural Development, through Project HOPE) projects to assist the MOH to improve the implementation of the Rural Health System.

Current AID-supported projects which have health services development aspects include the nationwide child survival project and another HOPE project. Plans are currently beginning for another major health project, broader in scope than the current ones and building on past accomplishments of the MOH.

CONTINUATION AND NON-CONTINUATION OF ELEMENTS OR ACTIVITIES OF U.S.-SUPPORTED HEALTH SERVICES DEVELOPMENT PROJECTS

Table 2 summarizes findings regarding the main potentially continuable elements and activities of the key health sector development projects (or groups of projects) which received U.S. government support in Guatemala. In the table, asterisks indicate items which could have continued but either did not (a double asterisk:**) or continued although with a low level of utilization or efficiency and without showing significant benefits of project interventions (a single asterisk:*).

As Table 2 indicates, U.S.-supported HSD projects have, over the past 45 years, had lasting effects on health services in Guatemala. The MOH (as well as others) has made use of components or activities of all five of the major project clusters in providing and further developing health services for at least three years after completion of U.S. assistance through the projects. It is reasonable to assume, as the team's informants do, that those perduring effects of U.S. assistance to HSD in Guatemala have also benefited the health of the population. Given the general low health status of the Guatemalan population, however, and the powerful economic and social factors which contribute to it, those benefits have been limited.

[NOTE: CONDENSE THIS TABLE TO FIT STANDARD PAGE!!!]

Table 2
Principal U.S.-Supported Health Services Development Projects in Guatemala

	Roosevelt Hospital	SCISP	Mobile Units	Rural Health	SINAPS; PRINAPS; CAPSVO
Personnel					
Training Programs	Nursing	Nursing	--	TSR;Aux.; Insp.San.	PSR trng methods**
Specific Personnel					
Participants	?	Admin/Tec	--	Admin/Tec*	--
In-country trng.	Nurses	?		TSR,Aux.	PSRs **
On-the-job trng.	Admin.	Admin/Tec	Tec.	Admin/Tec	Adm/Tec**
Infrastructure	Hospital	H.Cntrs	H.Posts	INDAPS H.Centers	--
System Characteristics					
Institutions/ Subsystems	Hospital	Admin.& Hlth.Ed.	** Mobile services	RuralHlth Trng. & Services	** Botiquines
Organizational Structure RHPs	Hospital	Admin.& Hlth.Ed.	?	--	** Couples as
System Capacities	Hospital	Adm.,Trng &Hlth.Ed.	** Mobile services	TSR/PSRtrg CmntyPartipe	* Trng;Supervision
Functions/Activities	Hospital	Admin/Tec	** Mobile services	Rural hlth services	* Trng;Spv.
Resource Allocations	Hospital budget	Adm;Trng; Hlth.Ed.	** Mobile services	RuralHlth	** More support &FP

** = Did not continue at least three years after end of U.S. funding.

* = Continued, but with a low level of utilization or efficiency, and without showing significant benefits of project interventions.

In Guatemala City, improved curative care became available through Roosevelt Hospital, and that institution's hospital and medical staff administrative programs became models for others, public and private. A marginal lessening of the negative health effects of the very bad economic and nutritional situation of the rural majority has probably been obtained through the Rural Health Program, achieved initially through PHC-focused health and community development activities (including traditional sanitation and immunization programs). In recent years, personnel trained in the Rural Health Program have participated in oral rehydration and Expanded Program of Immunization efforts to improve Child Survival. (Also see Sonia Arita de Massey, An lisis de Condiciones Actuales del Técnico en Salud Rural, Guatemala, 1987). Across the country, but primarily in cities and towns, the health of Guatemalans has probably been marginally improved by public health program development and public health administration assistance provided from the 1940's into the 1960's.

Three of the five projects/clusters produced lasting changes in the health services delivery system. Roosevelt Hospital continues to provide medical care, serves as a training center for medical personnel, and has influenced the national patterns of medical and hospital care. The overall plan for Roosevelt Hospital's service system included a network of urban health centers which would refer patients to the hospital and, in a sense, function as a major part of its outpatient services (facilities for which were therefore very limited within the hospital itself); four centers were built, with U.S. funding, between 1945 and 1947, when they were turned over to the Municipality of Guatemala and became first V.D. clinics and then general care clinics which operate (three under the Municipality and one under the military) to this day. SCISP, through collaborative organizational and institutional development and training, set patterns for public health administration and organization which continue today, and established or strengthened programs such as health education and malaria control. The Rural Health Program continues today, seven years after the end of the AID loans which supported it in the 1970's, and essentially maintains the program design and activities developed then.

Two of the major clusters, each with a rural focus, are generally considered to have failed to produce lasting changes in health services. Within six months after cancellation of U.S. funding of the mobile rural health units, the vehicles were put to more general uses serving the departmental and area health staff, and the only lasting effect of the project cited by informants was the long-term staffing by the MOH (with Auxiliary Nurses) of some of the health posts which had been built by the village committees using Q0.25 fees which had been charged for the mobile units' services.

The PRINAPS/SINAPS/CAPSVO series of projects (and a smaller Integrated Rural Development Project under an AID grant to HOPE) also did not succeed in producing lasting changes in levels and effectiveness of MOH/GOG support of the Rural Health Program or in promoting adaptation of improved supervisory and training practices demonstrated within the projects.

Reviewing the continuation and non-continuation of various elements and activities of the projects, it appears that many of the lasting effects depended upon training. Each of the three kinds of training reviewed had lasting impacts.

Overseas "participant" training, especially at the time of the Roosevelt and SCISP projects in the 1940's and 1950's, made available a generation of Guatemalans with additional skills and knowledge necessary for development and operation of public health and health services systems, and probably with favorable attitudes and experiences with regard to U.S. health care systems and their management. (The emphasis and location of much of that training, unfortunately, also may have decreased their interest in rural health care.) Participant training received less emphasis in later years. In the Rural Health Project, three of four participants returned to Guatemala and work for the GOG, but none in jobs directly related to rural health.

In-country training of health services personnel has been an important and lasting contribution of U.S. assistance in HSD. Nurses have been trained in the National School of Nursing since the Roosevelt Hospital era, and the curriculum and organization of the school continued to reflect the technical assistance provided then. Auxiliary Nurses and Sanitary Inspectors continue to be trained at the National Rural Health Training Institute (INDAPS) established in 1971 under the 1970's loans, and TSR training (suspended since late 1984 due to the MOH's lack of additional absorptive capacity) is expected to resume in 1988.

On-the-job training, usually not specified in formal project design, is an important factor in the continuation of project elements and activities. This is reported to have been a factor in the success of the 1940's and 1950's projects, through close collaboration between U.S. and Guatemalan technical and administrative personnel. It has also had an important effect, perhaps less in terms of specific knowledge acquired than in terms of familiarity with the program and conviction of its importance, with regard to the continuation of the Rural Health/TSR program; INDAPS leaders and staff of the program (and of the parallel evaluation) now occupy key positions in the MOH and in other institutions in Guatemala, or in international organizations where they can also indirectly influence the program.

Infrastructure in the sense of physical facilities is a lasting and effective heritage of four of the five clusters of HSD projects. Roosevelt Hospital, the National School of Nursing, health centers from the SCISP/Roosevelt era, health posts built with mobile health unit fees, and the INDAPS facility (based in a former United Fruit Company hospital) all continued to be used appropriately for years after the respective projects ended, and most are still in use. Maintenance has been a constant problem, however, for most of the facilities, due to lack of MOH operating funds and to low priority; the attempt to use vehicles as partial substitutes for fixed facilities failed partly because of maintenance problems and costs. (Construction of physical facilities alone does not guarantee their continued use: some of the BID-financed health facilities have never opened.)

The principal aim of most HSD activities, as a means of improving health, is to improve health care systems or to focus them on activities which will produce desired health impacts. Preceding paragraphs have mentioned ways in which Roosevelt Hospital, SCISP, and the Rural Health Program have strengthened specific aspects of the system, and the lack of lasting system impacts following the mobile rural health services and SINAPS/PRINAPS/CAPSVC projects. In the case of the latter project series, there are potential "sleeper" effects, in that some MOH and PVO officials have mentioned their interest in adapting and using some of the materials and methods used in those projects, and at least one MOH rural physician is said to be using some of them. The most fundamental aim of that series of projects, and of the preceding rural health loans and today's Child Survival efforts, is to achieve significant and lasting improvements in rural health; that will require substantial increases in the rural health program budgets and in the effectiveness of support systems, preferably accompanied by measures to increase rural productivity and incomes.

CONTEXTUAL FACTORS

Natural Disasters

The 1976 earthquake forced a temporary reorganization of the MOH to provide for reconstruction; however, the reorganization had no effect on project continuation. On the other hand, during reconstruction the TSRs were able to demonstrate their general competence and reliability and their flexible application of multiple skills, including planning and community organization at the village level. It appears that this positive experience contributed to the continuation of the TSR program beyond the end of the AID loans in 1980.

The lesson may be that resources developed, especially flexible and polyvalent workers, may be able to adapt to changing circumstances and multiple needs (the rule in the case of natural disasters) and thereby have a greater chance of being maintained and supported over time.

Political

Except for the Arevalo/Arbenz period (1944-1954), the basic conservative political position of the GOG, including the behaviorally expressed national health policy favoring hospitals, physicians, and the capital city, has been consistent throughout the period of U.S. assistance in health. This conservative policy did not prevent continuation, for example, of the TSRs' training and employment, although it has played a role in withholding the support which they and other rural health personnel need for fully effective work.

Shifting levels of rural violence and repression have affected projects both during (highlands community health project) and after (TSRs) the periods of U.S. support to the projects. However, even violence did not prevent continuation of project activities, by the definition used in this study.

Two specific (and themselves politically dissimilar) interest groups at the national level, physicians and the national university, opposed certain developments such as the use of Health Promoters and later of Rural Health Technicians. This opposition may have been mitigated by active support of another interest group, the Association of Municipalities. Nevertheless, although the TSR training program and the rural health program continued to function after AID's loan support for them was completed, physicians' pressures and political influence may have helped limit adequate support for the rural health system.

In summary, then, it seems that political constraints, since they are rather constant for health services development projects in Guatemala, have not influenced their degree of sustainability. Projects such as the TSR component of Strengthening the Rural Health Services System are sustained under unconducive political conditions, while projects like Mobile Rural Health Services (1966-70) are disbanded.

Bilateral Relations

U.S.-Guatemalan relations have been cordial throughout the period under consideration, except for a period of growing U.S. hostility in the early 1950's following the election of the leftist Arbenz regime. Only one health project, construction of Roosevelt Hospital and the nursing school, continued throughout

the period of difficult U.S. relations with the Arbenz government in 1950-1954. In the late 1970's and early 1980's, human rights concerns and civil unrest and violence caused the U.S. to decrease its assistance to the GOG, but the TSR training program continued with GOG funding when loans supporting it expired in 1980. Continuation of HSD projects appears not to have been affected to an important degree by contemporary U.S.-Guatemalan relations, even in 1983-86 when international advisors and the PHC component of one AID-supported project were removed at GOG request.

Shifts in the U.S. Government's foreign aid policy which influenced health projects over the decades appear to have had little effect on continuation of health services development project activities in Guatemala because other donors took over facilities construction which AID no longer supported, and PAHO, WHO and AID-Guatemala continued support of aspects of Primary Health Care even in the era and within the context of Child Survival. The MOH has continued to be the recipient of the majority of U.S. Government health service development funds in Guatemala, in spite of the policy shift toward increasing U.S.G. funding of PVO projects.

Socio-Cultural

Socio-cultural factors appear to have had little to do with the continuation of aspects of U.S.-supported health services development projects in Guatemala. The socio-cultural cleavages in Guatemala are so deep, and GOG interest in health services for rural Indians has been so limited, that it is surprising that the Rural Health System and the TSRs, specifically intended to serve rural people, were maintained after expiration of the relevant AID loans.

Economic

The most important economic factor influencing health in Guatemala, the very skewed distribution of incomes and wealth, has not changed significantly throughout the period of U.S. assistance to Guatemala. The most important economic factor affecting health services, also a relatively constant factor throughout the period, was the small share of GNP captured by the GOG. The constancy of those factors makes it impossible to evaluate their impacts on continuation.

Private Sector (and PVOs)

The informal private health services sector in Guatemala (traditional healers and midwives, "injectionists", and shops selling medications) and semi-formal private sector (pharmacies) are important sources of curative health care, especially for the rural Indian population. They provide health services and information to their respective clients wherever they are present, from urban areas to the most remote rural villages. All of these services have greater coverage than does the MOH. Although they have important bearing on the acceptance of information, practices and products advocated within MOH services and in U.S.-supported projects elsewhere in the health sector, they appear to have little effect on continuation of projects or of aspects of projects.

PVOs have trained and supervised rural health promoters and traditional or empirical midwives in recent decades. The PVOs' programs provided examples and experience which the MOH was sometimes able to apply in developing its own rural health activities and program. An association of PVOs involved in health sector activities (ASECSA) was established in the 1970's, partly in order to permit the PVOs to unite in order to communicate and deal with the MOH in areas of mutual interest such as promoter training. At times the PVOs' presence and activities appeared to promote a GOG attitude of letting the PVOs take care of a major portion of rural health care, but it appears that the PVOs' positive example and their demonstration of the potential effectiveness of rural health volunteers have encouraged the MOH to continue its efforts to train and support such volunteers and the TSRs whose intended role includes training and support of promoters. Thus the PVOs' efforts, combined with international donor policies, are likely to have influenced continuation of TSR training and of a rural health system in which volunteers were to play an important part.

Implementing Institution

Institutional characteristics of the MOH, including chronic underfunding, a highly centralized but fragmented organization, limited capacity for managerial and logistic support, and (at times) frequent changes of Ministers of Health, do not appear to have had major effects on project continuation. Rather, they affect MOH effectiveness and the general allocations of MOH resources, and thereby influence the effectiveness of continued activities. For instance, the change of minister in 1979 led to emphasis on capital investments in hospitals, which tend to assure that inordinate proportions of MOH budgets will be spent on hospital operations for decades to come, thereby contributing

to the shortage of funds for operations of other programs including rural health and others which had previously received U.S. support.

Several MOH officials have been involved in health services and institutional development in the MOH since the 1960's and still hold responsible and influential positions in the MOH, the GOG, or in international organizations, such as PAHO, in which many of them have worked at various times.

International Donors

International donors and lenders have had major roles in health services development in Guatemala. Their policies have had important effects on the continuation of various aspects of Guatemala's U.S.-supported health services projects. For example, continuation of TSR training was encouraged by the support of WHO, UNICEF, and other donors for Primary Health Care, Community Participation, and Rural Health Promoters after the 1978 meeting at Alma Ata.

AID and other donors and lenders have attempted to encourage the GOG to assign more resources to the health sector and to use them more efficiently, particularly for those health sector activities which would improve the health of the marginalized poor and the rural populations. However, donors have made little effort to coordinate activities, and at times this has resulted in their working at cross purposes.

PAHO and UNICEF collaborated with the MOH in the 1950's and 1960's to establish a network of health centers which provided the initial infrastructure for what was later to be expanded and become the rural health services system. Midwife training under the same program may have stimulated Guatemala's later development of volunteer rural health promoters. Another PAHO/UN agency, the Nutrition Institute for Central America and Panama (INCAP), as part of its applied nutrition research in the 1960's, carried out field studies which indicated the potential effectiveness of auxiliary personnel (nursing auxiliaries) as providers of rural health care in Guatemalan villages. UNICEF, PAHO and other international donors and PVOs provided assistance for training of large numbers of rural health promoters in the 1960's and 1970's, and continue to do so today. All of those efforts probably contributed to the continuation of the TSR program within the rural health system.

The Inter-American Development Bank (IDB), from the mid-1970's into the early 1980's, financed construction of hospitals and health centers in areas outside of Guatemala City. The consequent increases in the need for operating funds for the hospitals are seen by many as having hindered the advance of efforts to improve the coverage, quality and support of basic health services in rural areas. However, scarcity of funds did not lead to cessation of the TSR program.

In the 1980's, there is concern in the MOH that Child Survival activities (a mutual interest of AID, UNICEF, and PAHO/WHO) will not be sustained or will not be integrated into service programs after external funding ends, so that their effects on child survival will be short-lived. However, Child Survival funds have been made available to help the MOH overcome some specific problems in continued activities of other U.S.-supported activities such as the previous lack of MOH funds for maintenance and repair costs for motorcycles which had been provided for some TSRs. This involvement and support is an example of ways in which projects of one era are linked to those of another, in this case in a mutually supportive way. This has sometimes been the case in other projects in Guatemala, including projects which have received support from different donors. UNICEF/PAHO assistance provided the initial infrastructure for what was later to be expanded and become the rural health services system. Midwife training under the same program may have stimulated later development in Guatemala of Rural Health Promoter and TSR programs.

National Commitment

There has been clear national commitment (defined as a consensus among national leaders with regard to projects) for some projects (e.g., Roosevelt Hospital), some consensus for others (Mobile Health Units), and a clear and enduring lack of consensus regarding others (such as the TSR program). The consensus among Guatemalan leaders with regard to Roosevelt Hospital appears to have contributed to obtaining the 88% of the construction funds which were provided by the GOG and later the operating funds for the facility. Experience with the high costs and operational problems of mobile health units was such that there was little resistance among leaders to discontinuation of their services.

The enduring lack of consensus with regard to the TSRs seems to have decreased over the years. The University of San Carlos, which strongly opposed the TSR program in its early years, appears to be more favorably disposed now, although there is still strong resistance to the program among some physicians.

PROJECT CHARACTERISTICS

Project Negotiation Process

Plans for the first U.S. government assistance to the GOG in the health sector, in 1942, were developed by the U.S. health officer, Dr. Eugene Campbell, and his counterpart Dr. Carlos Esteves, the Director General of Health. Later, members of Campbell's team, with informally selected MOH counterparts, planned simple sanitation systems and other projects.

Although most early planning seems to have been collaborative, President Ubico was in power at the beginning of 1942 and, with other Guatemalans, successfully insisted that a hospital (the Roosevelt Hospital) be built in Guatemala City. This was contrary to the clear and declared intent of the U.S. government to not include hospital construction as part of U.S. support. (Ref: Boostrom notes from 28JUL87 TB/EB/LC interview with Dr. Eugene Campbell, regional health head in Guatemala from June, 1942, to July, 1945). The continuation of Roosevelt Hospital and its activities has much to do with its close correspondence with the well-established preferences of the GOG for support of curative care in Guatemala City, and little to do with the negotiation process.

The 1964 Mobile Rural Health Units project, on the other hand, was a U.S. initiative, intended to get good publicity and have meaning for the "man on the street". It was to be paid for entirely by the U.S. and to last seven years, but after several years U.S. funding for the project was stopped. (1AUG87 notes from Boostrom tel. interview with Dr. Maccorquodale, health officer DEC63-AUG68). This experience probably gave the impression that the U.S. imposes its own ideas and may withdraw from commitments.

In the 1970's, the principal AID figure in health in Guatemala was AID Health Officer Dr. E. Croft ("Johnny") Long. He and a private Guatemalan physician, Dr. Alberto Viau, are credited with instigating the TSR training program. Although Drs. Long and Viau initially expected the program to be modeled after the Physicians Assistant program at Duke University, in the course of project planning and curriculum development other Guatemalans shifted the curriculum drastically, to emphasize disease prevention and rural development. This nationally-instigated shift in focus stimulates pride among the program's supporters and may also decrease resistance to it, thereby increasing the likelihood of its further continuation.

Negotiation of other health services development projects, following the rural health loans, has apparently been on the basis of the intended pattern of rural health care and its support which was established in the 1970's; the subsequent rural health efforts supported by AID in Guatemala have attempted to help the MOH improve and expand its implementation of the rural health services system. This orientation seems to have been acceptable to Guatemala, and would be expected to increase chances of continuation of the activities of that set of projects. In fact, although the rural health system continues, those projects appear to have had little effect on it or on GOG support for it. One independent observer commented that it was difficult to detect traces of those projects in the MOH.

The negotiation of Child Survival projects in the 1980's may have again reinforced the Guatemalan impression that AID imposes project themes and places strict conditions on its funding. Concern by MOH officials with regard to possible non-continuation or decay of effectiveness of the highly vertical Child Survival programs may indicate that they feel that the projects have not been designed and implemented in the ways in which they would have wanted them to be. They relate this impression in part to the negotiation process (involving not only AID but also UNICEF and other agencies).

In summary, it seems that with regard to U.S.-supported HSD projects in Guatemala the project negotiation process (and Guatemalan perceptions of that process) have had a minor and indirect role in continuation of projects.

Institutional and Managerial Characteristics

Vertical/Horizontal

In keeping with general practices of the MOH, U.S. government-supported projects in the health sector have, for the most part, been vertically organized and managed, from the earliest efforts of the Roosevelt Hospital/SCISP period, up to the present. For example, the 1970's Strengthening Rural Health System loans were administered by a special implementation unit in the MOH. This vertical organization, which is often characterized by lack of lateral communications, may have contributed to lack of knowledge of the TSRs' roles and functions on the part of physicians and others with whom they must work. That lack of understanding has, in turn, led to problems and conflicts between other workers and some of the TSRs. By permitting the TSRs to function temporarily with their own supervision and support sources and channels, such vertical organization may also have contributed to the inadequate support of the TSRs (especially marked since 1980), which continues to hamper their effectiveness.

A frequent and longstanding complaint among MOH leaders concerned with implementing effective, appropriate and sustained services with high coverage is that the organization of "projects", rather than "programs", tends to inhibit service integration and avoid resolution of problems of achieving and maintaining high coverage, both of which they see as necessary for achieving their objectives. However, the vertical project structure of the MOH does not appear to have influenced decisions regarding the continuation of elements or activities of U.S.-supported projects.

Managerial Leadership

Managerial leadership of the early projects was shared between the Guatemalans and the North Americans, who were all considered to have active and shared responsibility for implementation of the activities supported by U.S. funds and Guatemalan counterpart monies. Since the late 1970's (when Drs. Long and Viau became much less active in the program, even before Dr. Long's departure), several MOH officials have continued to play key roles in health services development within the MOH, particularly in the sustained efforts to maintain momentum in the development of the rural health services system.

Systems and Administrative Training

Direct control of administrative systems, through the shared administrative authority and responsibility of U.S. nationals, was provided as part of U.S.-supported programs in the 1940's and into the mid-1960's. Projects in the 1960's and 1970's, and on into the 1980's, have not had such U.S. control and have lacked other mechanisms to directly strengthen administrative systems. Lack of adequate support for administration has hampered the effectiveness of the Rural Health Technicians and the Rural Health Promoters.

Training of MOH personnel in administration (as well as in other subjects) outside of Guatemala has depended to a great extent on externally funded study grants and fellowships from AID, PAHO, and other agencies. Outside training was an important element of U.S. efforts to support health services development in Guatemala from the 1940's through the 1960's, and during that time participants in the program apparently came back to desirable positions in the MOH, which helped assure that most of them did in fact return and used their new knowledge. In recent decades AID projects appear to have made less provision for such training, although AID's more general participant training program may also have provided some. The 1970's rural health loans funded long-term overseas training for four persons, two administrators and two architects; three of them returned and are working in the GOG, but not in the MOH.

Financing

National Absorption of Costs

Construction of Roosevelt Hospital was accomplished with 88% GOG funding and 12% U.S. funding, followed by minority U.S. funding for efforts to strengthen management and services

(focused on the hospital) and ongoing GOG payment of hospital operating expenses. Services and operations of the SCISP were jointly funded, and some of those services (e.g., rural water and sanitation and malaria control) continue to this day to receive external support. The Rural Mobile Health Units were initially to have been fully-funded by the U.S., and when the U.S. prematurely stopped funding them, the vehicles were put to use for more general purposes; regular visits to provide direct health care in small rural villages stopped. Loan-funded U.S. support for efforts to strengthen the rural health services delivery system in the 1970's led to GOG funding of the system's operations and of continued Rural Health Technician training in the 1980's, but the rural health system is underfunded and training of the TSRs has currently been suspended (since late 1984) due to lack of MOH financial absorptive capacity for additional graduate TSRs.

Several U.S.-supported projects have attempted to improve the support and supervision of existing TSRs and Rural Health Promoters, but there are indications that when external support was completed the level of support and resources available to those personnel returned to the previous and generally prevailing low (and inadequate) levels. This raises the very strong likelihood that the MOH/GOG will not be able to sustain the services (or levels of services) which are now being attempted or proposed with large amounts of external funding from Child Survival funds or from U.S. Economic Support Funds.

Foreign Exchange

Low requirements for foreign exchange have been a positive factor in continuation of elements or activities of health service delivery projects. Relatively high foreign exchange costs (along with low cost-effectiveness) appear to have mitigated against continued provision of the mobile units. Foreign exchange requirements for health services development and operations are due principally to needs for equipment and supplies (including pharmaceuticals) which often must be imported. If external technical assistance is required, it also sometimes imposes substantial foreign exchange requirements (depending on the source of the assistance). Foreign exchange costs for technical assistance personnel and for imported equipment and spare parts were probably a major part of the U.S. government's 12% contribution to the construction and equipment of Roosevelt Hospital, but, except for medications, the hospital's operational costs could be paid almost entirely in local currency. Continued operation of the mobile health units, on the other hand, would have involved a high proportion of foreign exchange expenditures for imported medicines and vehicle parts, in addition to the eventual need to replace the imported vehicles and indirect foreign exchange costs of imported fuel.

The rural health program was designed to have low foreign exchange costs, and Guatemala's insistence on only minimal levels of technical assistance for the implementation of that program further contributed to keeping overall foreign exchange costs low.

Substitution Demand

MOH and other GOG decision makers' perception appears to be that, given consistently low levels of GOG funding for the MOH, increased funding of rural health services would require decreased funding of hospitals. Political pressures (including those exerted or influenced by physicians) appear to mitigate against that substitution. The low levels of overall funding for GOG services make substitution issues very important. In health, for example, partly as a result of management problems and the capital over-investments in the last decades, even the MOH's proportionally large spending on hospital staff and operations does not permit full operation of many hospital facilities, even in Guatemala City. However, decision makers' general priorities and their perceptions of the substitution issues have not caused them to completely discontinue key elements of the rural health program (such as the TSRs), although the program continues to be underfunded.

Cost Recovery

Partial cost recovery was included in at least some of the earlier U.S.-supported projects. In the 1960's, at the request of the Guatemalans, a Q.0.25 charge was assessed (but often not collected, in practice) for services of the mobile rural health units, primarily because of concern that the patients considered "free" services to of less value than those for which they paid something. The proceeds from those services were intended for use by a community development committee in each village served, but doctors often gained control of use of the funds and saw to it that they were used to construct health facilities, regardless of other community priorities. MOH officials have mentioned that those communities which had constructed health posts with those funds later asked for, and sometimes were assigned, full time auxiliary nurses to staff the facilities, indicating a possible effect of that cost recovery or community participation (through payment) on later availability of health services in those villages.

Overall, however, there is not enough experience with cost recovery within the health services projects in Guatemala to permit any statement regarding its effects on continuation of project activities.

Cost Effectiveness

The pattern of utilization of the large hospitals in Guatemala City has turned out to have very low cost-effectiveness, because they function as basic hospitals, delivering services which could equally well be delivered at much simpler facilities. (For example, nearly 50% of discharges from San Juan de Dios Hospital in a recent year were normal deliveries. (WBSR86))

The mobile rural services, with their high operational costs (including fuel, vehicle repairs and maintenance, medications, and salaries and travel and per diem allowances for nurses, doctors and drivers), were considered to have a very low cost-effectiveness ratio, which was one major consideration in the MOH's decision to discontinue such services.

The rural health delivery system, on the other hand, was designed to be highly cost-effective, and the loans were partially justified and negotiated on that basis; although inadequate funding and administrative problems (mentioned above) have decreased the system's productivity and therefore its cost-effectiveness thus far, it still has the potential to be a very cost-effective operation.

Content Aspects

Selected Project Design Factors

1. Project Duration: U.S. Government support for development in the health sector, as in other sectors, has been designed in segments ("projects") which in general were intended to last approximately five years. In fact, however (Table 2), the projects can be grouped into clusters which may last much longer. Those clusters may be seen as lasting approximately ten years, as did the 1970's rural health loans in themselves, or 15, 20 or more years, as did construction and support of the Roosevelt Hospital and the overall support for development and implementation of rural health programs (including both the 1970's efforts and the subsequent series of projects, some of which are still receiving AID support).

Examples of MOH-continued project activities may be found both in such long term project clusters and in shorter term individual projects. Roosevelt Hospital and TSR training are examples of the products of long term project clusters which were maintained after the end of direct AID funding for them. Examples of continuation of activities initiated under short term projects include the Municipality of Guatemala's still-continuing provision of health services from the clinics built with U.S. funding between 1945 and 1947 and MOH staffing

and support of health posts built with patient fees from the aborted mobile health services project in the 1960's. Non-continued elements of short term projects include the mobile health services themselves and evaluation techniques demonstrated in the Rural Health System Evaluation Project in the late 1970's. Individual project duration, in itself, appears to have little to do with the continuation or non-continuation of elements of health services development projects. However, sustained efforts in a series of projects, each building on earlier lessons, appear to promote eventual continuation. In Guatemala's health services , U.S. support (alone and with other donors) has followed that pattern.

2. Clarity of definition of project objectives: With the exception of the clear objective of constructing Roosevelt Hospital in the 1940's, it appears that early project goals were vague. Subsequently there was a trend toward increasingly clear definition of project objectives. There is also a trend toward defining project objectives in terms of changes in the health services system, rather than in terms of direct services, although until recently the main emphasis in Child Survival projects has deviated in some ways from that trend. Clarity of definition, in itself, appears to have had little to do with continuation of elements or activities of projects.

3. Number of beneficiaries and their perceptions of the importance of the benefits: The planned beneficiaries of the U.S.-supported health services development projects have included the entire population of Guatemala, with emphasis since the mid-1960's on services for the poor (especially in rural areas) and for infants, children and women of fertile age. There has never been a groundswell of popular support for any U.S. supported projects, except possibly for construction of the Roosevelt Hospital, so beneficiaries' perceptions of benefits do not appear to have had a direct influence on continuation of project activities.

However, the perceptions and interests of local and national politicians have a direct influence on continuation decisions. For example, the Association of Municipalities supported the creation of the TSR program during negotiation of the first health loan, and pressure from them helped assure the program's continuation after the loans ended. Given the 8% portion of the GOG budget which goes directly to municipalities under the 1985 Constitution, and new ministries' efforts to strengthen local development and administration, similar pressure will probably help assure reactivation of TSR training and national or local governments hiring of additional TSR's within the next year or two. Hence, politicians' and decision makers' perceptions of the likely political effects of continuation of specific project components, at the time when continuation decisions are being made, appears to be a crucial factor in those decisions. Popular perception of projects and their components and benefits often influences continuation decisions through that mechanism.

4. Provision for ethnic and sexual balance in all aspects of project implementation: Provision for ethnic and sexual balance in the design of projects varied greatly among the health services development projects which have been examined. Roosevelt Hospital was intended to serve all in need of tertiary hospital services, but patterns of referral and hospital use probably made it likely from the outset that more ladinos than Indians would use its services. Maternal and child health projects and rural health projects (which usually incorporate an MCH focus) tend to provide more direct benefits to women than to men. Ethnic balance among health services providers participating in projects has ranged from a strong built-in bias toward ladinos (physicians and nurses, technicians, managers, etc.) in the Roosevelt Hospital project to relative ethnic (and sexual) balance in the TSR program and in Rural Health Promoter programs. It is probable that sexual balance has been a neutral factor in continuation decisions. Given clearly demonstrated GOG preferences for services to urban ladinos, it is also likely that other "positive" factors actually had to overcome the fact that many elements of U.S.-supported projects in recent years were intended to benefit rural and Indian groups.

Training Programs

Programs for the in-country training of health services personnel have been important parts of several U.S. government funded projects, and some of those training activities have clearly been continued after the end of U.S. funding. The continuation of the TSR training program is the clearest example, because it involved a program which introduced and trained a new type of health worker. Training programs for auxiliary nurses and Rural Health Promoters continued, but with less clear influence of U.S.-supported projects, because such workers were already being trained prior to the initiation of such U.S. support, with assistance from many other donors and agencies for their training and support. Health services personnel trained during and after the U.S.-supported projects remained, for the most part, either employed by the MOH or other health sector agencies (as in the case of most of the TSRs) or available for such work. In some areas, however, a high proportion (reported to have reached two thirds in some zones) of volunteer personnel such as Rural Health Promoters were killed during the 1981-83 violence, when any community involvement was deemed suspect by the military.

Professional, managerial and technical training of MOH personnel, in Guatemala and overseas, has been an important component of most U.S.-supported health services development projects, especially until the 1970's. Such training has increased the supply and quality of qualified personnel within the MOH and within the health sector. It has probably also helped to create an atmosphere favorable to continuation of U.S. projects, because those who have been trained often occupy

responsible MOH positions and often have come to understand the rationale, objectives and benefits of the projects and their components.

The inclusion of training in projects appears to increase the likelihood of continuation of project activities. The training programs themselves are likely to be continued (or to introduce changes in training practices in other training programs), the trained personnel continue to be employed in the MOH (primarily) or at least in the sector, and the personnel trained for roles related to project activities are likely to attempt to see that those activities continue.

Incentives

Special personnel incentives have not been included to any significant extent in the design of health services development projects (except those specifically focused on family planning, which are not covered in this report). However, the GOG regulations, budgets and administrative procedures are such that it seems unlikely that special personnel incentives included in projects would have been continued, and their cessation at the end of the project(s) might even lead to decreases in or cessation of the activities which they had supported. This appears to have been the case with regard to the discontinued SINAPS project.

Supplies and Logistics

Supplies and logistics appear to have been major problems in health services development projects in Guatemala since the earliest days of U.S. support for them. The Roosevelt Hospital construction project was accompanied and followed by efforts to develop adequate support, logistics and operational systems for the hospital, and the project itself included provision for a maintenance program and for a stock of spare parts; informants have cited this as a factor in continuation of the hospital's effective operation in years following the construction project. Later, in the 1960's, one of the flaws cited as reasons for discontinuing the Mobile Health Units project was lack of spare parts and of adequate provision in schedules and budgets for vehicle maintenance. A former US health officer in Guatemala commented that maintenance problems in the 1960's had finally led him to adopt a policy of not financing anything which had moving parts.

In the Rural Health Program, one of the key problems (especially after U.S. financing ended) has been the lack of adequate provision for supplies for logistic support, and for maintenance and repair of motorcycles and other equipment. Lack of provision for adequate responses to such problems appears to be a key cause of decreased effectiveness of projects, and contributed to the non-continuation of the mobile rural health services. Except under special circumstances, it is difficult for AID to fund operating expenses, including many supply and logistic expenses, and GOG inability to comply with project designs' arrangements for counterpart funding of such expenses has sometimes hindered effective project implementation and thereby limited the likelihood that continuable project elements would be developed. There is a quandary, however, in that the same shortage of GOG operational and maintenance funds can cause activities proven effective during a project (with special donor support for logistics and maintenance) to be ineffective when they continue without such support.

Technical Assistance

Technical assistance was a major component of U.S.-assisted health services development projects from the 1940's until the mid-1960's. The roles of technical assistance personnel appear to have changed gradually during that time, however, moving from direct authority and responsibility to more of an advisory function. One reason for that change, and for the eventual drastic decrease in the need for, and Guatemalan acceptance of, technical assistance, was the growing technical capacity of the Guatemalan personnel, attributable to training, longer national technical experience, improved communications, and acquisition of knowledge shared by earlier technical assistance workers. Inclusion of effective technical assistance was probably an important factor in the eventual continuation of many aspects of early projects, especially in the 1940's and 50's, but became much less important in later decades.

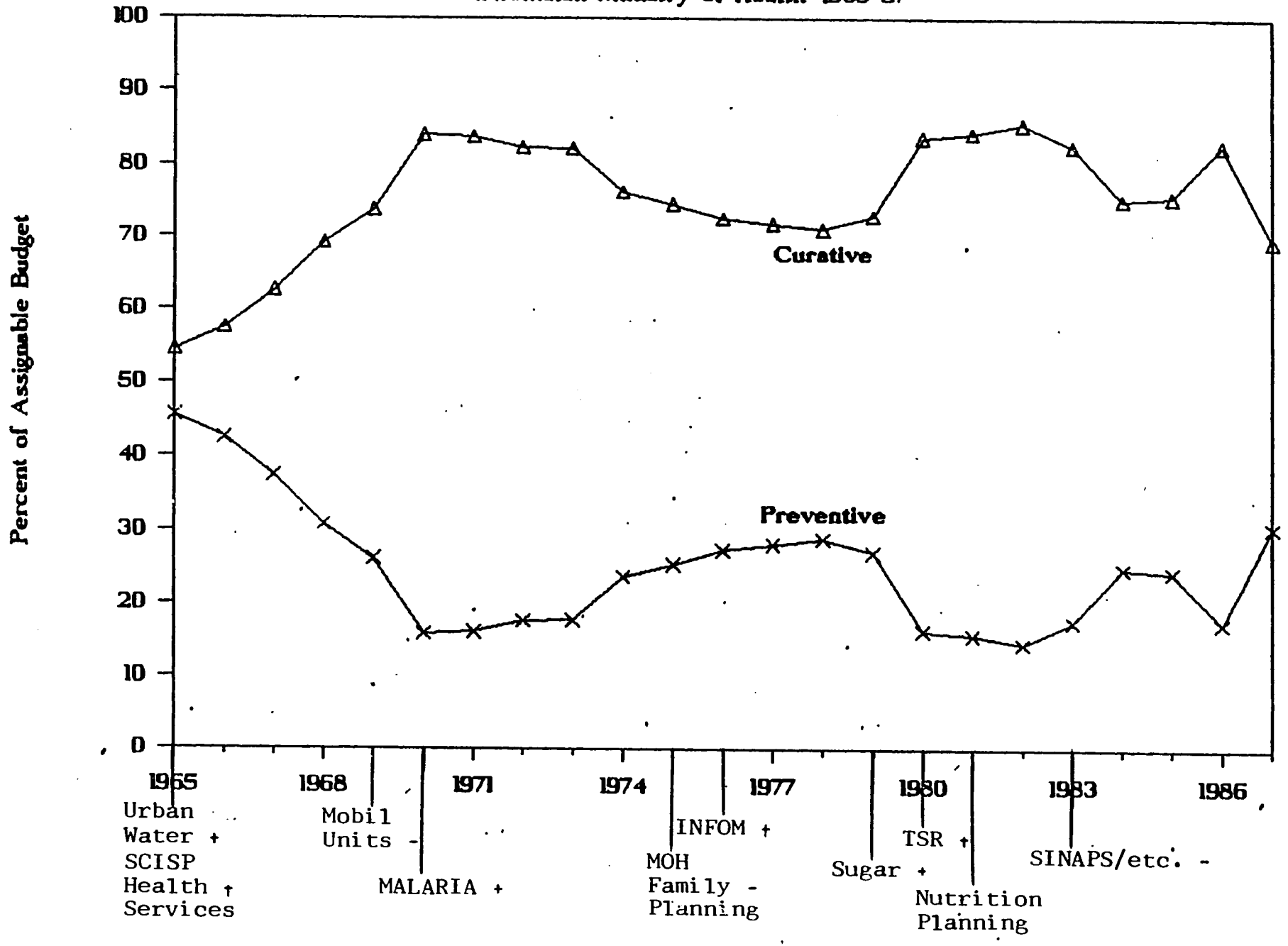
Appropriate Technology

The classification of technology as "appropriate" or "not appropriate" is much more complex than the usual conception of "appropriate technology" as being very simple and appropriate for use in rural areas or villages without electricity. Very complex technologies can be appropriate for specific circumstances. In the context of Guatemala's health situation and the most prevalent health problems, however, relatively simple technologies have always been needed. Some mid-level technologies, such as immunization, must continue to be used, and projects have attempted to improve their effectiveness and coverage. Other mid-level technologies, such as motor vehicles in the mobile rural health unit program, have not functioned or

FIGURE 3

Sustainability and Curative Priority

Guatemalan Ministry of Health: 1965-87



been maintained reliably enough to effectively serve their intended purposes, leading to the aforementioned comment about not investing in anything with moving parts. Examples of what are usually termed "appropriate technologies" include Lorena stoves, simple water and drainage systems, and oral rehydration, all of which have been taught to and by TSRs and some health promoters. It appears that inappropriate (e.g., mom-maintainable or unaffordable) technologies have themselves not been continued and in one case (mobile units, which also failed in several other attempts in Guatemala) led to a non-continuation of a project based on them.

Community Participation

Community participation, although a key feature of several U.S. supported health services projects in Guatemala, appears to have had little influence on their continuation.

Community participation has been a feature of a number of U.S. government supported health services development projects in Guatemala since the 1960's, when Village Development Committees were active in the Mobile Rural Health Units project. Those committees used the consultation fees collected by the Mobile Unit teams to finance construction of small health facilities, for which some then obtained MOH auxiliary nurses after the mobile unit program stopped. Hence, community participation was partly responsible for continuation of part of what was generally considered to have been a failed project.

Community participation is a hallmark of the design of Guatemala's Rural Health Program, based on various experiences in Guatemala prior to the design of that program in 1971. The TSRs' training focuses on community participation, organization, and development. The TSRs' consequent ability to work effectively with communities, and the demonstration of that ability after the 1976 earthquake, was a positive factor in the decision to continue TSR training after AID funding of the training program ended in 1980.

Community participation became very difficult during and after the 1981-1983 period, during which many community leaders and promoters were identified and killed. Similar events had also taken place in the 1970's and earlier, when rural cooperative leaders and others were killed (sometimes by Government troops) because they had participated in training programs or other activities sponsored by the GOG or others and were considered potential troublemakers. Rural people, remembering such experiences, are leary of involvement because they feel that the same things could happen again with another change of government. Under such circumstances, community participation should probably be included in health programs directed to the rural areas, but programs should not be made dependent on such participation and means should be sought to

protect participants from possible future problems. Training of personnel such as TSR's in decentralized community organization and development may permit effective work with communities without unduly exposing community members to future retribution or danger, with the advantage that the TSRs (few of whom were killed or disappeared in the early 1980's violence) can be removed from the community to safety in case of danger.

Effectiveness

At the end of U.S. support for a given health services development project, certain elements can usually be identified as having been successful, others less so or not at all. Judgements of overall effectiveness must be based on identification of such elements, in most cases, as has been evident in the preceding sections. In any case, continuation decisions are normally taken with regard to specific project elements, not whole projects, once donor funding has ended. There were identifiably successful elements in all of the U.S.-supported health services activities which had ended by mid-1984 (the cut-off date for inclusion in this review). Decision makers' perceptions of those successes, and of their relevance to the decision makers' own objectives (health, political, or other) were undoubtedly important in continuation decisions.

Roosevelt Hospital was seen as very effective in providing desired urban, hospital- and physician-based curative care Guatemala City. SCISP was perceived to be very effective in helping the MOH to initiate, organize and deliver health services, including preventive health services and health education, which the GOG felt to be necessary. The Rural Health Program was also considered effective, having produced TSRs who proved their competence and worth after the 1976 earthquake, but it was often noted that their role in the health care system was not widely understood. The Mobile Rural Health Units, on the other hand, were seen as ineffective, relative to costs, in delivering feasible, sustainable health services. (Several informants, however, mentioned that some of the village posts constructed with service fee revenues were later staffed by MOH auxiliary nurses.) The SINAPS, PRINAPS and CAPSVO projects, in the 1980's, were seen as ineffective in that they did not produce noticeable changes in the training and supervision of rural health promoters or in the level and quality of support which the MOH affords to the TSR's or other rural health personnel. These perceptions of effectiveness are important determinants of continuation of project elements and activities.

SUMMARY OF KEY FACTORS INFLUENCING CONTINUATION OF ELEMENTS AND ACTIVITIES OF SPECIFIC U.S.-SUPPORTED HEALTH SERVICES DEVELOPMENT PROJECTS IN GUATEMALA

The relative influence of the various hypothesized environmental factors and project characteristics in later continuation of aspects of projects varies from project to project. This section summarizes, for each of the major clusters of U.S.-supported health services development projects in Guatemala, the factors which the author considers to have had the most influence on continuation or non-continuation. For each project, the factors mentioned first are considered most important.

Roosevelt Hospital still continues to have an important role in Guatemala today, and the most important factors leading to that appear to be its conformity to the **National Commitment** (Consensus) with regard to the project's **Content** (Curative, urban, hospital- and physician-based care, in the capital city), which also conforms to **National Policy**. A **Project Design** factor, duration, also contributed.

In the case of the SCISP project, three **Project Design** factors, the project's **duration** and its inclusion of participative **technical assistance** and **training**, contributed to its **effectiveness** and to long term continuation of its activities and effects.

The Mobile Rural Health Units were not continued because of their low **Cost-effectiveness**, **Donor policies** which did not support them, and possibly **Socio-cultural** factors (general MOH staff attitudes not favoring rural services). (The later MOH staffing and continued use of health posts built using mobile units' service fees was partly attributed to **Community Participation** and **Cost Recovery**.

Many elements and activities of the Rural Health Program, including TSR training and employment, continued due to the program's **Effectiveness** and **Managerial Leadership** and to **Donor policies** which were in accordance with the **Project Design** (which included **training** of a flexible, polyvalent worker, able to adapt to circumstances and meet a variety of needs within the health system and to have a multiplier effect as a trainer of promoters). Another Project Design factor, the relatively large number of **TSRs** trained with AID funding, may also have contributed to continuation, as did the **political** support of the Association of Municipalities. The non-contribution of adequate support for TSRs, on the other hand, is attributable to lack of consensus regarding the rural health program (a **National Commitment** factor) which along with a **Political Factor** (the effective policy of non-development of rural Indian areas) helps keep operational rural health budgets low. Other factors diminishing support for rural health activities are **Socio-cultural** (desired maintenance of

socio-economic cleavages), **Project Design** (inadequate provision for integration of TSRs into health teams), and the **Economy** (general scarcity of resources).

The SINAPS/PRINAPS/CAPSVO series of projects was not continued and is reported to have left little trace. Its non-continuation is related to all of the **factors listed above** in relation to the low level of support for the rural health program, plus **National Commitment** (lack of consensus on family planning services, a key feature of the projects), a **Project Design** problem (**Incentives**: incentive payments to participating MOH personnel could not be maintained under MOH regulations and budgets), and perceived lack of **Effectiveness**. A **Donor Coordination** problem (disagreements among AID, INCAP, and the MOH) may also have contributed.

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ANNEX C: WATER SUPPLY AND SANITATION CASE STUDY

OVERVIEW

Background

U.S. government support for water systems and sanitation projects in Guatemala was initiated in 1943 by the Servico Cooperativo Inter-Americano de Salud Publica (SCISP). With the exception of one brief period (from 1951 to 1954) when assistance was suspended during the Arbenz government, U.S. government support for the sector has been continuous. It has supported different government agencies, the University of San Carlos, and PVO's.

The U.S. has not been alone in supporting Guatemala's water and sanitation sector. In the early 1960's the Inter-American Development Bank (IDB) began providing funds for water and sanitation programs and soon came to dominate foreign support for the sector. Other international agencies, UNICEF, Canadian International Development Agency (CIDA), and the Central American Bank for Economic Integration (CABEI) have also made significant contributions.

In urban areas significant progress was achieved in the 1960s by the combined efforts of the Instituto Nacional de Fomento de Obras Municipales (INFOM), IDB, and AID. Levels of coverage for the urban areas in Guatemala began to increase markedly. In 1971, 89 percent of the urban population had water supply (household connections or public standposts) and 42 percent had sewer connections (ref: IDB, 1986). The rural areas, on the other hand, were lagging far behind. Only 13 percent of the rural population had water and/or sanitation facilities. It is important to note that all coverage statistics do not reflect the adequacy of the facilities or the quality of the service.

To address the water supply and sanitation problems in the rural areas the Unidad Ejecutora para Acuaductos Rurales (UNEPAR) was created in the early 1970's. Funded by IDB and CIDA, this unit operated within the Ministry of Health and initially took over the responsibility for rural water supplies and sanitation from the Division of Saneamiento Ambiental (DSA). After the earthquake, when UNEPAR became semi-autonomous within the MOH, DSA received renewed life with AID, UNICEF and CABEI funding.

During the late 1970's and early 1980's funds for earthquake recovery and building new water supply and sanitation systems began to pour in to Guatemala. AID switched to the rural sector for new water supply and sanitation projects and provided grants to CARE and Agua Del Pueblo (ADP)--two non-government organizations that developed significant water

supply and sanitation programs. AID also funded the DSA's Community Based Health & Nutrition project in 1981. UNICEF continued to fund DSA operations, and IDB, CABEI and CIDA provided support for UNEPAR, INFOM and EMPAGUA projects.

Current Institutional Organization of the Water Supply and Sanitation Sector

Urban sector water and sanitation institutions in Guatemala are well developed. EMPAGUA has responsibility for Guatemala City and INFOM provides loans and technical assistance to the 329 cabeceras municipales--urban areas that vary in size from fewer than 500 to almost 730,000 persons.

In the rural areas, the Departamento de Saneamiento del Medio (DSM) which replaced DSA, has responsibility for communities with fewer that 500 persons, and UNEPAR has responsibility for the larger communities. UNEPAR projects,which with IDB funding are by far the largest rural programs, are characterized by fast execution (they are done under contract) but have little community participation and health education.

DSM operates within the MOH and currently receives grant assistance from UNICEF and AID. Currently its major project workload is the AID Community Based Health & Nutrition project. The program is characterized by a slower implementation rate than the UNEPAR projects but has higher levels of community participation. DSM is also responsible for the latrine programs in the rural areas.

Other institutions active in the sector, but to a much lesser degree, are the Ministry of Development (formerly acting through Desarrollo de la Comunidad), the National Committee for Reconstruction, and three private voluntary organizations: Agua del Pueblo, CARE and Catholic Relief Services.

To promote better organization of the sector, the Comité Permanente de Coordinaci n de Agua Potable y Saneamiento, COPECAS, was formed in the early 1980's. The institution has responsibility for coordinating water supply and sanitation programs in both the urban and rural sectors and meets monthly. Technical assistance to COPECAS is provided by the Pan American Health Organization (PAHO).

Current Levels of Water Supply & Sanitation Coverage

Despite the large investments in the urban areas high population growth rates and urban migration have resulted in declines in the levels of coverage existing in 1980 (from 88.9 to 70.6 percent for water, and from 44.4 to 41.2 percent for sanitation). The rural areas have fared somewhat better since

1980 (increasing from 18.6 to 26.5 percent for water, and from 20.9 to 28.6 percent for sanitation).(WASH, 1987) However, these levels of coverage are still extremely low, even when compared to other Central American countries. In total approximately 2000 water systems have been built in the rural areas of Guatemala since the 1940's.

PRIOR CONDITIONS AND PROJECT INPUTS

U.S. government contributions to the water and sanitation sector can be divided into six project types funded by the U.S. government in consecutive periods (see Table 1). The first period of substantial assistance, the SCISP era (1955-66), provided support primarily for institutional development and for urban water supply and sanitation projects.

During the same period, a series of water supply, sanitation and housing projects implemented by SCISP and the MOH focused on providing water and sanitation services in small rural communities (of 200 to 1500 people).

In the later 1960's AID's only contribution to this sector was a project for the University of North Carolina to provide technical assistance to establish the Escuela Regional de Ingenieria Sanitaria (ERIS) at the University of San Carlos.

In the 1970's AID's efforts were focused on urban water and sanitation projects implemented by INFOM. Between 1972 and 1981, approximately 40 municipal systems were constructed and many existing systems damaged by the 1976 earthquake were repaired.

During the 1970's AID began to turn to PVO's as the implementing institutions for its water and sanitation projects in rural areas. Five projects provided funding support for Agua del Pueblo and CARE. Three of these projects, are completed and two are currently still being implemented.

The major water and sanitation project of the 1980's is a sub-component of the $10.8 million Community Based Health and Nutrition project which is being implemented by the DSM. The original project contained a primary health care service component, however, problems in the early 1980's inhibited implementation. In 1983 the project was amended to focus entirely on water and sanitation with considerably improved implementation.

Determination of Sustainability

There is little information available to analyze (quantify) what benefits have accrued to sub-project recipients. It is likely, however, that the water supply and sanitation projects have contributed to the general decline in overall mortality rates (especially in children) that has occurred.

There are two types of project outputs that can be sustained in this sector. The water and sanitation systems that have been put in place during the life of the project can continue to function if they are maintained either by a government agency or by the local community. We consider these outputs to be immediate outputs. Replicable outputs are provided by the institutions which continue to construct new water and sanitation systems after the AID project has ended. For the purposes of this study, project replication can be considered sustained even if the funding comes from international rather than national sources -- as long as project personnel, facilities, and administrative systems continue.

The urban systems that were built under the SCISP program have been maintained (sometimes rehabilitated--after the earthquake or to improve the level of service) and expanded. The institution that SCISP created was absorbed into the Ministry of Health in 1962, and continued to construct new water and sanitation systems.

There is no information available on the eventual outcomes of the AID supported programs that were targeted to mostly small rural communities in the late 1950's and 1960's. Since the projects involved little community participation, little or no organizational training of the community, and no cost recovery--factors that have been crucial to the maintenance of water and sanitation systems in most countries--it is not likely that they have been fully sustained.

Both the INFOM projects have proven to be effective and sustainable. The earthquake reconstruction was achieved, approximately 40 new systems still continue to operate, and INFOM continues to operate with follow-on IDB loans.

The three PVO projects which have been completed were all successfully implemented and the immediate outputs appear to have been maintained, although no solid information is available. Both CARE and Agua del Pueblo continue to receive AID funding. Without AID support CARE and Agua del Pueblo would likely continue with their water and sanitation programs but at much lower levels of implementation. The two on-going projects tend to have similar characteristics as the completed projects.

The Community Based Health and Nutrition Project is an on-going project that originally had implementation problems but was redesigned to be an effective project. Some of the sub-projects have been implemented and continue to function after one to three years of operation.

Over twenty years after its founding, The National Sanitary Engineering School (ERIS) continues to graduate about 20 students a year (higher than its historical average) and about half of its students are from Guatemala. The School now is supported by scholarship grants from PAHO and other international sources. Funding for the operation of the school comes from the Government of Guatemala.

In conclusion, it appears that most of the AID supported water and sanitation projects were fairly well sustained. In most cases, systems which were put in place during the life of the project have been maintained to at least minimal levels of sustainability. The institutions which construct new water and sanitation systems are able to continue after the end of AID projects because other international donors continued to provide major funding.

While in general we find the projects to have been sustained, the degree of success has varied. Urban projects of the SCISP era and INFOM and the recent rural PVO projects were more likely to be maintained and replicated than were rural projects of SCISP and DSA. Rural sanitation components, i.e. latrines, were generally much less effective during the life of the project and were less likely to have been sustained than were water systems projects. Rural projects which did not emphasize education and community participation, such as the small communities projects of the 1950's and 1960's were also less likely to have been sustained since the maintenance of these programs depends on the communities.

It is also important to note that the sustainability of future rural water systems may require much greater efforts in maintenance. The current gravity systems are relatively easy and cheap to maintain. However, most of the sites where gravity systems are appropriate now have existing systems. Most future systems will have to be more complex, requiring pumps which need constant maintenance. This fact suggests that more resources will be necessary in the future for the sustainability of immediate outputs of projects.

CONTEXTUAL FACTORS

Natural Disasters

Recuperation from the earthquake of 1976 did divert resources from the on-going water supply and sanitation projects

of INFOM and the MOH for repair of the many damaged systems. However, it appears that the response of the government and international institutions was sufficient to restore systems to their former operating levels--at a cost of delaying implementation of new projects. There is no indication that the long term sustainability of either rural or urban water supply and sanitation systems was affected.

Political

Water supply and sanitation projects seem to have enjoyed a certain independence from the many changes in government in Guatemala. The trend of growth in this sector continued throughout different types of political regimes and appears unaffected by other political pressures. This independence can be attributed to the high degree of reliance on municipalities or rural communities rather than the MOH for maintenance of water systems and latrines put in place during the life of the project. As for replication, the high degree of national commitment and the continuous availability of funds from external sources have led to water supply and sanitation portfolio growth in spite of political changes.

Bilateral

The changes in bilateral support seem to have had more influence on the start-up of new programs rather than on the sustainability of any of the project types. For instance the largest AID program efforts--SCISP, the PVO projects starting in 1984, and the expansion of the DSM project in 1984--all came during periods of favorable U.S. relations and SCISP was stopped during an unfavorable period (1951-1954).

In terms of overall AID policy, support for water supply and sanitation in Guatemala runs against the trend. In most areas of the world AID funding for water supply and sanitation has been on the decline in the 1980's while it has increased in Guatemala. This increased support is too recent for us to evaluate its impact on sustainability.

Socio-Cultural

The very strong traditional organization of Indian communities is a key factor in the sustainability of water supply projects in the rural sector. Even with minimal levels of training, these communities, for the most part have been able to collect fees for water system repair and perform the basic maintenance tasks that are required.

On the other hand, strong socio-cultural traditions have proven to have a negative impact on the sustainability of the latrine programs. Indian communities are very reluctant to build and use latrines and strong health education programs are needed to offset this tendency.(ref:Ing. Calderon, Dr. Cerezo, Ing. Garcia Valle, CARE, ADP).

The socio-cultural factors do not appear to have much influence on the sustainability of water supply and sanitation projects in the urban areas.

Economic

Probably the largest impact of the economy is that the lack of a strong economy has made it difficult for all agencies that are responsible for former AID assisted investments to provide the necessary funds for operations and maintenance or for replication (without external support).

In any case the large amount of external assistance has cushioned the sector from effects of changes in the domestic economy.

It appears that minimal levels of operations and maintenance can be achieved even during economic downturns. This is probably due to the low cost technologies that are employed in both the urban and rural sectors. Both sectors would probably be more susceptible to economic downturns if more complicated and costly systems (like pumping in rural areas) were employed.

Private Sector

PVO's have been employed to implement a number of AID projects. The existence of several effective PVO's allowed AID an acceptable option to public sector institutions. There are no studies, however, that compare the relative effectiveness of public and private implementation of water and sanitation services. The public sector has by far the most important institutions in the sector and, as in the case of current CARE projects, implements some projects for PVO's.

Implementing Organization

The two major implementing institutions that AID has assisted have very different institutional characteristics. INFOM has, over the years, developed adequate technical capabilities, a stable organizational structure, and is recognized as a separate agency with clearly defined institutional goals, policies and project routines. AID's investments with this agency have been particularly well sustained.

With the DSM, the situation is the opposite. DSM has suffered from loss of trained personnel to UNEPAR in the 1970's and the institutional instability associated with that decline in role and resources. It is not as well organized, administered and does not have the national economic resources that are available to the urban based institutions.

Both INFOM and DSM, however, have centralized vertical hierarchies and are relatively independent of the rest of the health sector. This lack of integration is common in water supply and sanitation agencies in most countries and suggests that for this sector vertical and centralized institutions may be more effective implementors of this technology. UNEPAR, which is somewhat decentralized may be an exception to this conclusion.

Other International Donors

The presence of two large and influential donors (AID and IDB) and several smaller ones, has contributed to the fragmentation of the rural water supply and sanitation sector. As a result, coordination is poor, standards of design and cost recovery practices vary widely, and project effectiveness is impaired. Despite the formation of COPECAS--the national coordinating agency for the sector--little has been done to ensure that more cost effective designs and consistent cost recovery practices are developed. The implications for the sector are more severe for the future (as projects become more complex) than they are for sustaining past and current investments.

For the SCISP and INFOM projects donor involvement has had a more positive effect. The presence of almost continuous financing for INFOM from IDB has provided the necessary sequencing for INFOM to sustain its own projects and those of the original SCISP program.

It is worthwhile to point out that political interests and international support for the International Water Supply and Sanitation Decade have ensured that funds have been and likely will continue to be available.

National Commitment

The national commitment to water supply and sanitation has been strong in the past and continues to be one of the highest government priorities. Undoubtedly, this factor has shaped the context of and provided support for the whole sector. However, there is considerably greater interest in providing for urban areas than for rural areas, and the greater sustainability of urban projects may reflect this emphasis.

Project Characteristics

Project Negotiation

Little information is available on the older projects but it appears that for all of the project types in the water supply and sanitation sector the negotiation process was based on mutual respect and good participation of the Guatemalan counterparts. Only in the CARE (PVO Project) was there some friction over the way the project was to be implemented. (Ref: Giron). In this project MOH personnel reported that the AID mission insisted that community participation and health education interests (elements of sustainability) become secondary to the need to get projects built quickly in areas of civil unrest. However, the impact of this conflict on the project's sustainability is unclear.

Institutional and Managerial Characteristics

In general, the AID projects over the years have two very distinctive institutional development characteristics. The SCISP Era, the Water Supply, Sanitation and Housing Projects of the 1950's and the 1960's, and the ERIS projects all attempted to develop the institutional capabilities of their counterparts. There were long term advisors present to carry out this objective.

On the other hand, the subsequent projects have not attempted to develop the institutions in a meaningful way. Several Guatemalan informants remarked that AID's failure to provide institution building, failure to work closely with their counterparts, and to participate in sector coordination (COPECAS), contributed to crucial weaknesses in the sector.

Vertical/Horizontal Design

In one sense water and sanitation projects tend to be vertically organized because the institutions that implement these projects tend to be autonomous from other health sector activities, even if they are sub-units within the Ministry of Health. However, there is a difference between projects which are well integrated into a vertical organization and those which retain a separate existence even within the water and sanitation institutions.

In Guatemalan cases we have both situations. While AID supported projects which were more successfully sustained were integrated into the INFOM structure and into established PVO's, the less successfully sustained rural projects appear to have contributed to fragmentation even within sub-units of the MOH. Within UNEPAR and DSM each project is run as a separate program and there is little integration with other water and sanitation projects. The relatively unsuccessful small communities projects of the 1950's and 1960's also appear to have not been well integrated into Guatemalan institutions.

It seems fair to conclude that integration, even in a relatively vertically organized sector such as water and sanitation, is important for sustainability.

Managerial Leadership and Administration

The SCISP era projects were noted for their managerial leadership and good administration. Both contributed to the effectiveness of the project and to their ability to influence and motivate other institutions--especially those that would sustain the sub-projects. The INFOM projects also had good leadership and administration--allowing INFOM to take over and sustain the AID investments in the urban sector.

The DSM project was been plagued by the poor leadership and administrative capabilities of the implementing agencies. These weakness may have contributed to making these projects relatively less sustainable than those of other institutions. On the other hand, Agua del Pueblo also had some initial management problems which do not appear to have affected the sustainability of its projects.

Overall, managerial leadership and administrative capability were important sustainability factors for the urban based SCISP and INFOM projects where these institutions were responsible for the maintenance of the systems, but it may be less important for the PVO and DSM projects because most of the burden is on the communities to sustain their projects.

ERIS deserves mention because of the impact of leadership and administration. During its early years these factors were the main reasons for its success. However, political infighting at the University led to a decline in the quality of leadership and administration. Recently, both leadership and administration have improved again and the institution is starting to regain its image as a valuable asset. (Ref: Solares)

Administrative Training

Good training programs (both in-country and in the U.S.) were the hall mark of the SCISP era and probably contributed to sustainability. The ERIS program was also highly dependent on good training. The majority of Guatemalans trained through SCISP and ERIS have returned to or stayed in Guatemala. (Ref: Solares, Cordon, Quesada, Olivero)

The INFOM, PVO and DSM projects have all had some administrative training assistance but commentators note that it has been insufficient markedly to improve the organizations' abilities to be more effective or to increase the ability to sustain their activities. This has been less serious for INFOM, which has received training from other sources. But for the PVO projects and DSM, the lack of impact seriously affects the absorptive capacities and capabilities of the institutions. Again, because of the high level of external financing and community maintenance of rural systems this lack of training will have more impact on the sustainability of future, rather than existing projects.

Financing

Continuous financing of both investment costs, but more importantly operational costs, is one of the key sustainability factors in all but the ERIS project.

National Absorbtion of Project Costs

Few projects in this sector have been designed so that national counterpart funds contribute much more than personnel costs in the implementing agencies, a fraction of the costs of putting in new systems. The large amount of external funding seems to be having a more pronounced effect in the DSM where its portion of the MOH budget has declined.

In urban based projects of INFOM, the municipalities appear able and willing to provide for maintenance costs essential for sustainability. Some rural communities, especially those in recent projects which emphasize education and community participation are also successfully assuming maintenance costs.

In this sector then, institutions which were created or supported by AID projects seem to be sustained regardless of the national absorbtion of funding, in part because follow-on funding from other donors has made such absorbtion unnecessary. However, municipalities and communities have been responsible for the maintenance of projects once they have been constructed and have successfully maintained them with national or local sources of funds.

Foreign Exchange Component

Foreign exchange requirements have not been a problem for maintaining water and sanitation systems. In the urban areas, municipalities have been able to obtain materials and supplies (pumps, treatment equipment, etc.).

In the rural areas, the use of locally manufactured (such as PVC pipe) or readily available (such as imported valves) materials have allowed the projects to minimize the need for foreign exchange to achieve sustainability.

However, in terms of replicability, foreign exchange requirements for the purchase of pipe and other construction material may be prohibitive for national accounts. Since these costs are usually covered by international donors, we have no evidence to evaluate whether the foreign exchange burden would have restricted sustainability had other donors not been available.

Substitution Demand

Since water systems and sanitation projects are supported by a large amount of external financing there is no indication that support for water supply and sanitation has reduced the funding available for other MOH programs. In fact the opposite seems to have happened in DSM. This department's budget is only .5% of the MOH budget)--a sum which is inadequate for DSM to operate at acceptable levels (and support operations and maintenance activities). Reportedly DSM is competing for MOH funds that go to curative services or to support child survival activities.

Cost Recovery

For programs that have affected the urban areas, widespread cost recovery (with some water metering), and provision of national budget support and tax rebates to municipalities have enabled them to achieve sustainability of water supply and sanitation systems.

In the rural areas the design of low maintenance (gravity) systems coupled with a high (compared to other Central American countries) rate of cost recovery have permitted the rural communities to also achieve a minimal sustainability of water systems.

Cost Effectiveness

The SCISP era projects were noted for their efficiency and lack of corruption. (Ref: Solares, Cordon). Since that time many of the AID projects have not been efficient--partly because of poor administration and partly because of a low implementation capacity. AID projects have an image of being high cost projects because of the lack of attention to efficient use of available resources (Ref; Giron).

Content Aspects

Project Design

Poor project design and lack of clarity of goals seems to have been a fatal flaw in only one of the projects--the Community Based Health and Nutrition project with DSM. In that project the strategies for achieving an integration of water supply and sanitation with other health activities were unworkable, and the project had to be redesigned.

In most of the rural water supply and sanitation projects the projects have been seriously lacking in health education and in some cases community participation. Although DSA has some education programs and the TSR's from the MOH do provide some education and community organizing, the effectiveness of these activities varies considerably from project to project. Only Agua del Pueblo appears to have consistently provided education and community organizing with its projects. Lacking these elements, the expected level of benefits from the projects has probably not been achieved, and some of the sub-projects themselves have probably not been sustained. (Ref: Solares, Garcia Valle). This is certainly the case with most of the rural latrine programs.

All of the projects have addressed a felt need by the beneficiaries that has supported the demand for the sustainability of the activity.

Training

Training was discussed previously under Institutional and Managerial Character and except for SCISP has been reported to be largely deficient. However, because of the continuous growth of the sector over the years, there has been, to-date, sufficient capacity to absorb, trained professionals and workers in the sector.

Training of beneficiaries through education programs appears crucial to the sustainability of rural water systems and is particularly important for latrine projects. The projects which provide for this training--ie. Agua del Pueblo--are more sustainable than those which do not.

Supplies and Logistics

The SCISP and the DSM projects strengthened the logistics systems for their counterparts and improved their capabilities for effective project implementation. The DSM Community Based Health and Nutrition Project is particularly noteworthy since it established a good, regional project center in Totonicapan--which is likely to continue as a decentralized DSM operation once the project terminates.

Technical Assistance

Technical assistance was extremely helpful during the SCISP project. There was only one U.S. advisor and nine Guatemalan staff members at any one time. But there was also short term technical assistance and the influence of the engineers returning from U.S. studies that also contributed to technical assistance and training. Guatemalan counterparts were not specifically trained to take over the project, however, and there were some dislocations because of the abrupt end to the project in 1963.

The ERIS project was in essence a technical assistance project and was also geared to training counterparts to take over the program management after the project.

Technical assistance, as with training, has been reported to be weak in the AID projects of the 1970's and 1980's. There is no indication that any technical assistance was imposed by AID or was unacceptable to the Guatemalans.

Appropriate Technology

The use of appropriate technology in both the urban and rural (gravity systems) water supply projects has been a key element in the sustainability of all of the water projects. Coupled with cost recovery and the local availability of materials, appropriate technology has enabled municipalities and rural communities to be largely self-sufficient.

The opposite has occurred in the rural sanitation side. The simple dry pit latrine has been proven to be unacceptable to much of the indigenous population. The compost latrine has been tried with little success. Other alternatives such as the Ventilated Improved Pit (VIP) latrine and water seal latrines should also be tried to improve the sustainability of rural sanitation.

Community Participation

Community participation has not been a factor in the sustainability of the urban water and sanitation programs. In the rural areas it is very important and has occurred on two levels. One, springing from the strong socio-cultural factor, and the other as a part of the promotion of rural water and sanitation projects. The former has nearly always been present and is a crucial element of project sustainability. The latter, which should be a part of the community participation/health strategy of any rural project has been either inadequate or completely lacking in all of the rural programs. Only some of the Agua Del Pueblo and CARE projects have had major project focus on this area.

In general, community participation is a key element that has been self generated and allowed communities to achieve the minimal level of sustainability in water systems. For rural areas, however, it has not been developed to the point where it can support latrine projects.

Project Effectiveness

Almost all of the water and sanitation projects were viewed by informants as having been quite successful in achieving their goals and objectives. While this perception may not be fully confirmed by actual health benefits, it is clear that compared to other types of health projects, water and sanitation projects have a good reputation in this area.

SUMMARY AND CONCLUSIONES

Overall, AID's investments in water supply in both urban and rural areas and sanitation in urban areas have been sustainable, although those in urban areas seem to have been more successfully sustained than those in rural areas. In particular the rural sanitation (latrine) programs have been the least sustainable.

The urban water supply and sanitation projects owe their success to both contextual factors and project characteristics. These factors include, on the contextual side, high levels of national commitment, the sequencing of international donors (providing steady flows of funds), and the quality of INFOM, the implementing institution which also provides assistance to the municipalities that built systems under SCISP. The key project characteristics were financing (including cost recovery), institutional and managerial characteristics, and the effectiveness of the projects (especially the quality of the human resources development provided). The essence of the urban situation is that the municipalities can operate their systems and good technical assistance and financing is provided by INFOM with IDB support.

In the rural sector the most important contextual factors are the high national commitment to water supply and sanitation and the socio-cultural factor (strong, indigenous community organization). The project characteristics that are the most important are financing, and the content (appropriate technology) of the projects. The community participation factor, which could be a powerful factor in improving project sustainability, is not provided through project activities (which are relatively weak in this area) but are instead provided through the contextual factor of a strong indigenous culture. In the rural water supply sector the use of gravity systems, with minimal maintenance requirements permits the decentralization of the operations and maintenance to the community. No support is provided by the central government. However, since future systems will have to be more complex than the gravity systems now in place, government support for maintenance of projects is likely to become more important in the future.

Although rural water supply and sanitation projects are affected by the same factors, they can operate in opposite ways. For instance, while the socio-cultural factor has strengthened community capacity to maintain water systems it works against the acceptance of latrines. And the content, which emphasizes appropriate technology for water systems, has not yet produced a latrine design that is widely accepted in rural areas.

TABLE 1

Summary of USAID Projects
in Guatemala (By Project and Type)

	YEAR(S)	PROJET NAME	PROJECT NUMBER	GRANT OR LOAN	IMPLEMENTING AGENCY	AMOUNT OF USAID FUNDING
	SCISP ERA[a]					
1.	1955–1966	SCISP	20–50–900	GRANT	SCISP	$ 2,650,000
2.	1957–1966	Administration of SCISP	20–50–906	GRANT	SCISP	$ 494,000
	Water Supply, Sanitation, and Housing Projects (1950's & 1960's)					
3.	1952–1954	Health and Sanitation	520–0029	GRANT	SCISP	$ 171,000
4.	1957–1961	Environmental Sanitation	520–0085	GRANT	SCISP	$ 1,654,000
5.	1957–1964	Environmental Sanitation	520–0132	GRANT	SCISP/MOH	$ 406,000
6.	1957–1966	Environmental Sanitation	20–50–909	GRANT	SCISP/MOH	$ 870,000
7.	1958–1960	Rural Housing & Water Supply Rural Development Program	20–99–091	GRANT	AGRARIAN AFFAIRS	$ 613,000
	ERIS					
8.	1966–1971	ERIS		GRANT	Univ. of North Carolina	$ 300,000
	INFOM Projects (1970's)					
9.	1972–	Water Supply & Sewerage for Small Municipalities	520–017	GRANT	INFOM	$ 2,100,000
10.	1978–1981	Earthquake Recovery	520–027 (0236)	LOAN	INFOM	$ 2,700,000[b]
	PVO Projects (1970' & 1980's)					
11.	1975–1977	Village Water System & Latrines	520–0231	GRANT	CARE	$ 267,000
12.	1977	Rural Potable Water & Latrine Methodology	520–0244	GRANT	ADP	$ 24,000

13.	1984–1986	Rural Potable Water & Sanitation I	520–0298	GRANT	ADP	$ 500,000
14.	1985–1988	Rural Potable Water & Sanitation II	520–0335	GRANT	ADP	$ 1,000,000
15.	1985–1988	Water, Women and Health	520–0336	GRANT	CARE	$ 1,000,000
	DSM Projects (1980's)					
16.	1981–1988	Community Based Health & Nutrition	520–0251	LOAN	DSM	$ 9,500,000

(a) Earlier SCISP projects existed (starting in 1942) but no project information is available.
(b) Part of a total $8,000,000 Earthquake Recovery Loan.

It is worthwhile to note that during the course of this study, a number of Guatemalans pointed to the lack of AID involvement in sector coordination and institutional development as a critical shortcoming.

[INSERT TABLE C:1]

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4114A

Table 2

SUSTAINABILITY OF USAID'S WATER SUPPLY AND SANITATION PROJECTS IN GUATEMALA

USAID Assistance by Project Type (See Table 1)	Were Projects Sustained?			
	Maintenance of Subprojects		Benefits	Replication
	Water Supply	Sanitation		
SCISP Era (1955-1963)	YES	YES	UNCLEAR	YES
Water Supply, Sanitation and Housing Projects (1950's & 1960's)	UNCLEAR	NO	UNCLEAR	YES
ERIS (1956 - 1971)	YES	YES	YES	—
INFOM Projects (1970's)	YES	YES	UNCLEAR	YES
PVO Projects (1970's & 1980's)	YES	NO	UNCLEAR	YES
DSM Projects (1980's)	YES	NO	UNCLEAR	YES

ANNEX D: MALARIA PROJECTS CASE STUDY

1. OVERVIEW

The development and testing of potent residual insecticides during the 1940s and the successful eradication program conducted in the United States by 1950 raised hopes for similar results throughout the world. By 1955 a global consensus had emerged that public programs should be re-oriented to reflect the new, aggressive principle of eradication rather than the passive control philosophy that had characterized malaria policy for some 50 years.

In the Central American Region, AID, PAHO, and UNICEF joined forces with the governments of Guatemala, Honduras, El Salvador, and Nicaragua (Costa Rica and Panama were included later) to launch their Malaria Eradication Programs (MEPs) in 1956. These programs basically followed the general eradication strategy laid out by the World Health Organization, which anticipated that eradication goals should be attainable in eight to ten years, depending on the starting conditions in individual countries. Intensive mapping, stratification, and institution building efforts occupied 1955 and early 1956, when the Guatemalan Servicio Nacional para Erradicacion de la Malaria (SNEM) was formed to head the effort. The first SNEM Action Plan, covering the period 1956-61, ambitiously set the target date for eradication of malaria in Guatemala at July 1, 1960.

Table 1 illustrates the aggregate level and distribution of funding for the Regional MEP from that point through 1964. This year marks a crucial point, as it was roughly when WHO had predicted success, and AID grant funding ended. AID provided some $7.2 million in Central American MEP grants from 1958 to 1964, or just about one-fourth of the total. Almost 40 percent (over $2.8 million) went to Guatemala, which contributed almost $4 million to its MEP, or 39 percent of the $10.1 million total. On average, host governments picked up 44 percent of the Regional MEP costs. Guatemala fared comparatively well during this period.

[INSERT TABLE 1]

While direct comparisons are difficult, Guatemala still spent some 20 to 25 percent more annually than its bordering neighbor Honduras. El Salvador and Nicaragua spent, respectively, around 30 and 40 percent less than Guatemala on their MEPs. (These figures include all sources of funding for the respective MEPs.) Guatemala's much larger population does not explain these differences. (Tables 2 and 3.) Less than half of the country's residents lived in malaria-prone areas, compared to almost all the population in Honduras and Nicaragua. Accordingly, the target population in Guatemala was only slightly larger than that of other countries in the Region. Guatemala apparently was able to accomplish comparatively more

Table 1

STATUS OF MALARIA ERADICATION PROGRAM
Central America

LEVEL AND SOURCES OF PROJECT FUNDS: 1956-64 (US $)

	Total Funding	Local Government	USAID	PAHO & UNICEF
Guatemala	10,108,354	3,942,258	2,830,339	3,335,757
Regional Share (%)	36	32	39	38
Source Share (%)	100	39	28	33
Honduras (1)	5,021,500	1,556,665	2,159,245	1,305,590
Regional Share (%)	18	12	30	15
Source Share (%)	100	31	43	26
El Salvador	7,224,031	4,478,899	361,202	2,383,930
Regional Share (%)	25	36	5	27
Source Share (%)	100	62	5	33
Nicaragua	6,040,000	2,476,400	1,872,400	1,691,200
Regional Share (%)	21	20	26	19
Source Share (%)	100	41	31	28
REGIONAL TOTAL:	28,393,885	12,454,222	7,223,186	8,716,477
Regional Share (%)	100	100	100	100
Source Share (%)	100	44	25	31

(1) Honduras funding levels are for FY 1958-63.

Source: CAPITAL ASSISTANCE PAPER: GUATEMALA - MALARIA ERADICATION. AID-LA/P-75. October 1965, p. 9.

than its neighbors during this period. By 1963, almost two-thirds of the original Guatemalan target population was reported to be in the consolidation stage, so that costly comprehensive spraying programs were thought to be unnecessary in those areas.

[INSERT TABLES 2 AND 3]

At this point, however, Guatemala was on the verge of a relative explosion in malaria cases -- ironically, caused in part by the earlier success of the MEP in opening the fertile Pacific coastal plain to increased cultivation. More agricultural activity meant both accelerated vector resistance because of increased use of insecticides to protect crops, and a larger permanent and migrant worker population exposed to the disease. Neither of these developments was good news for expected malaria rates.

The resulting resurgence -- and its timing -- created turmoil. A period of stasis and uncertainty followed, with individual donor groups reconsidering their own particular goals and roles in the MEP, and delays being produced as additional assurances were sought. PAHO, AID, and the U.S. Public Health Service developed a three-year, loan-financed regional plan in early 1965, but AID took until December to formally authorize the necessary loan, and the actual Loan Agreement (520-L-011) between the government of Guatemala (GOG) and the United States was not signed until August 1966. Initial loan disbursements reached Guatemala seven months later, so that, in total, there was more than a two-year gap in financing from what had been the main external source of project funds.

In its 1966 annual report, SNEM laid much of the responsibility on the Guatemalan government, observing that eradication activities in both 1965 and 1966 were much lower than they should have been because of the GOG's failure to follow through on its commitment to absorb program costs previously paid by AID. Despite the agreement reached in August, SNEM remained wary about the continued uncertainty. UNICEF was equally concerned, and made its $395,000 appropriation for the MEP in 1967 contingent on assurances that "adequate" local funding would be obtained. With the initial AID loan disbursements in March of 1967, many of these qualms were put to rest, and the MEP went back to work rapidly and at higher levels of activity to try to recover lost ground. The diminished and stagnant spending levels of 1964-66 increased by almost 90 percent, despite actual reductions in Guatemalan spending for 1967. (Figure 1.) Nearly immediate reductions in reported cases and positivity rates were obtained. (Figures 2 and 3.)

[INSERT FIGURE 1, 2 AND 3]

Table 2

STATUS OF MALARIA ERADICATION PROGRAM
Central America: 1963

POPULATION (1000s)

	Country Total	Malaria Areas by Phase			Malaria Area Population Percent	Total Country Density (#/km2)
		Total	Consol	Attack		
Guatemala	4120	1912	1234	678	46	38
Honduras	2008	1892	941	951	94	18
El Salvador	2511	1641		1641	65	119
Nicaragua	1767	1697	668	1029	96	14
Total:	10406	7142	2843	4299		
Average:					76	28

Table 3

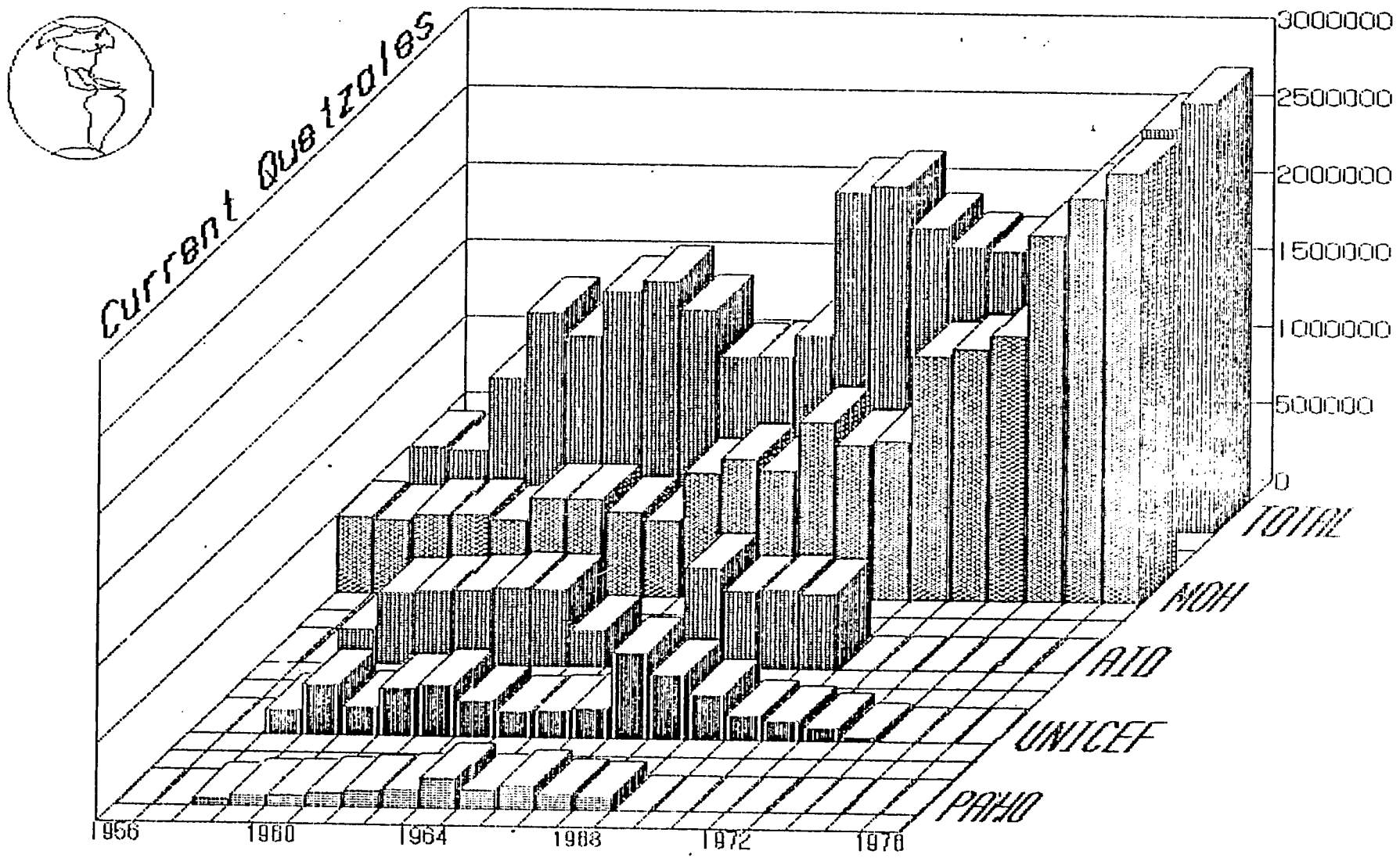
STATUS OF MALARIA ERADICATION PROGRAM
Central America: 1963

	Population Group	PER CAPITA FUNDING BY SOURCE (US $ per person)			
		Total	Local Government	USAID	PAHO & UNICEF
Guatemala	Malaria Zone:	5.29	2.06	1.48	1.74
	Total Country:	2.45	0.96	0.69	0.81
Honduras	Malaria Zone:	2.65	0.82	1.14	0.69
	Total Country:	2.50	0.78	1.08	0.65
El Salvador	Malaria Zone:	4.40	2.73	0.22	1.45
	Total Country:	2.98	1.78	0.14	0.95
Nicaragua	Malaria Zone:	3.56	1.46	1.10	1.00
	Total Country:	3.42	1.40	1.06	0.96
REGIONAL AVERAGES	Malaria Zone:	3.98	1.74	1.01	1.22
	Total Region:	2.73	1.20	1.01	0.52

Figure 1

Guatemalan Malaria Eradication Program

Sources of Funding: 1956-1976



Source: Malaria Division Annual Reports

Figura 2

Reported Malaria Cases

Guatemala: 1955-86

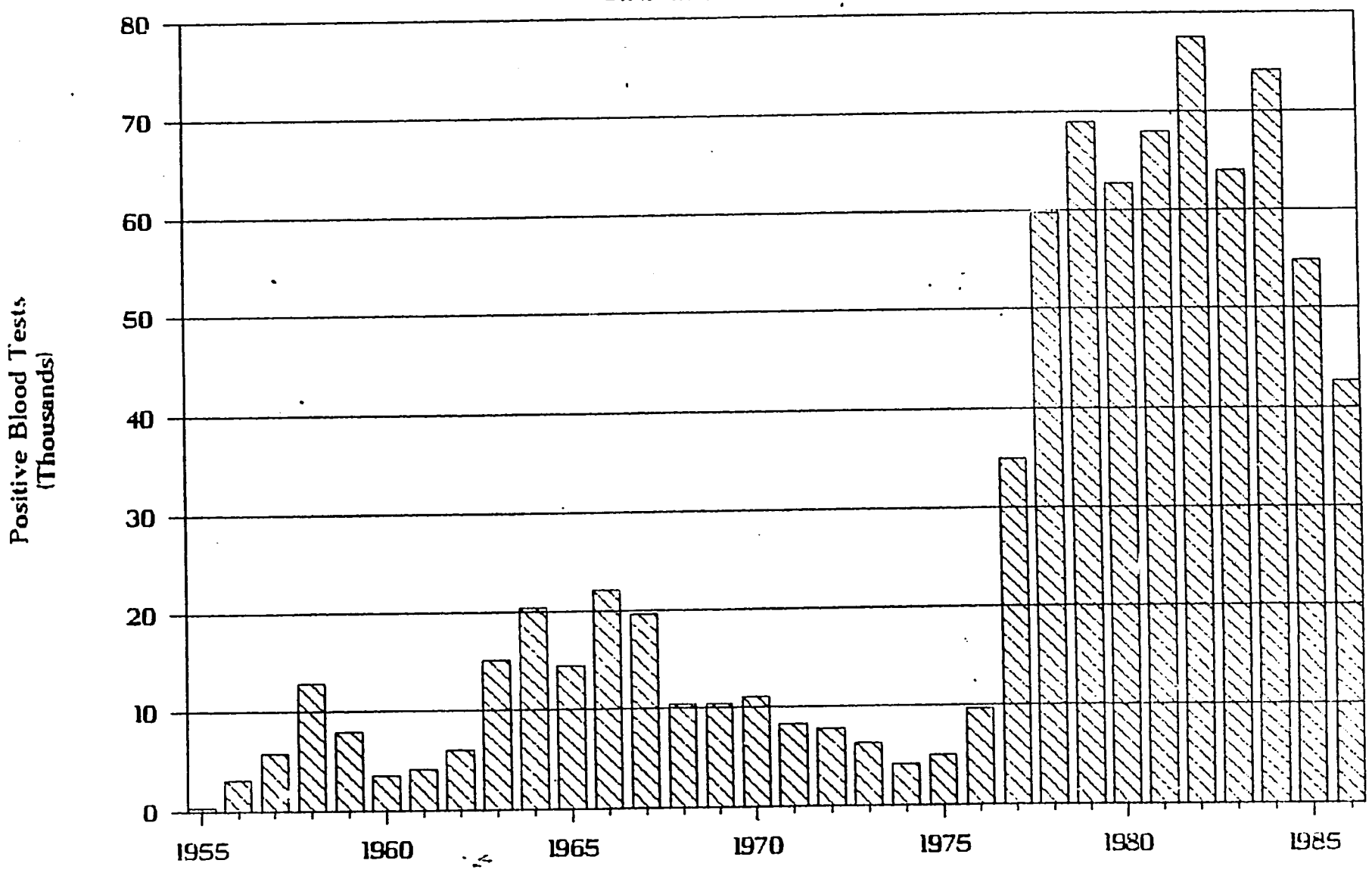
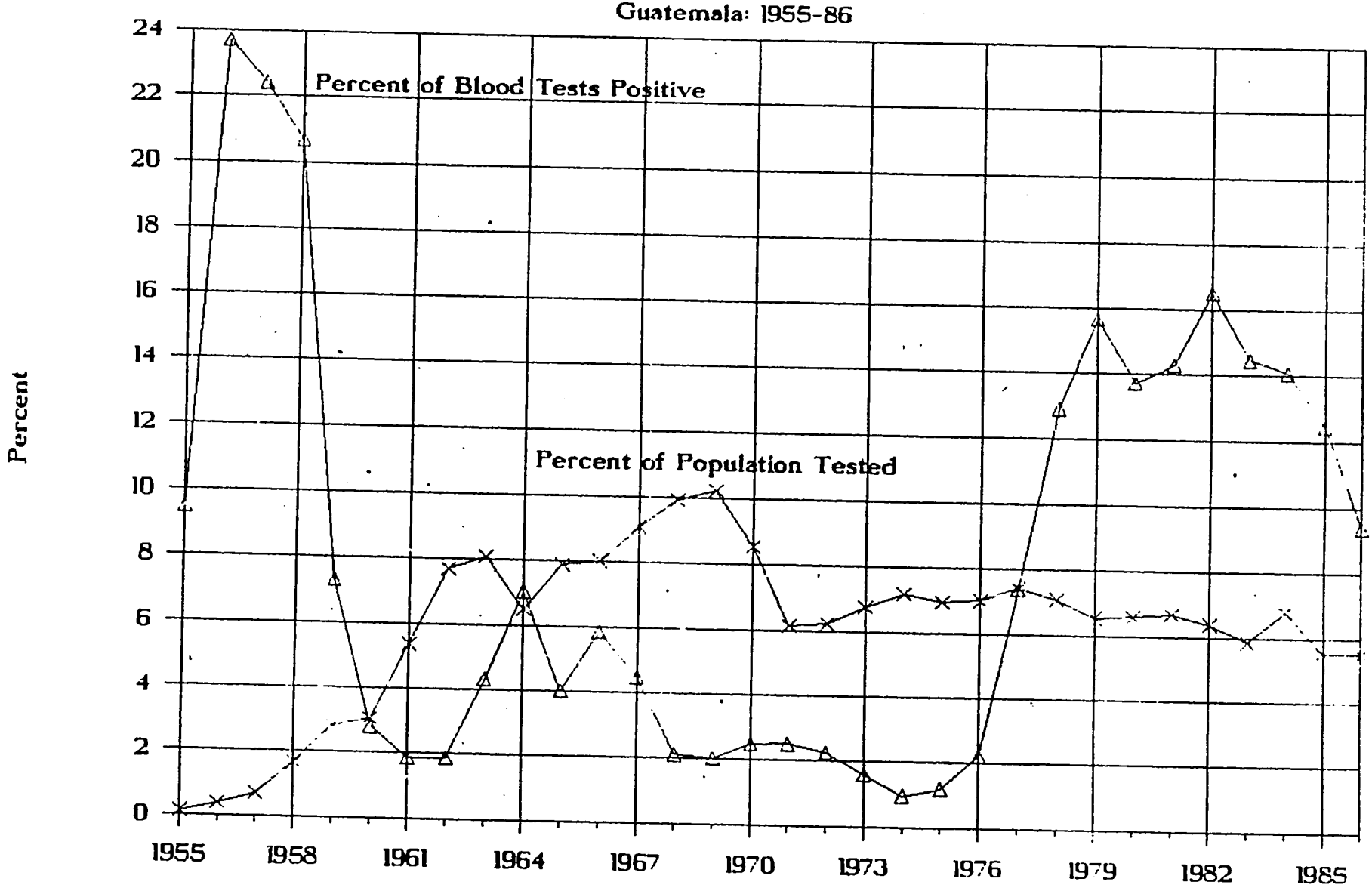


Figure 3

Malaria Incidence and Testing Rates

Guatemala: 1955-86



2. PRIOR CONDITIONS AND PROJECT INPUTS

Malaria control programs first appeared early in the 1900s, shortly after scientists had established the crucial relationships in the transmission cycle. Technical limitations made most of these efforts expensive and only effective for short periods. In Guatemala, the Public Health Department (PHD) undertook to coordinate diverse malaria control efforts beginning in 1928, but it was also held back by the lack of a reliable technology to handle the problem. Despite all efforts of government personnel and agencies -- many of them apparently well-designed and implemented projects -- malaria remained the primary cause of reported deaths and illnesses in Guatemala in the early 1940s. Inadequate funding and the lack of low-cost, persistent insecticides required for more coordinated approaches took their share of the blame, but the need for stepped-up international technical and financial assistance was becoming increasingly clear.

One response to this need appeared in August of 1942, when the Guatemalan Servicio Cooperativo Inter-Americano de Salud Publica (SCISP) was formed. Just as PAHO/WHO would later provide blueprints for SNEMs in all countries included in the Malaria Eradication Program, similarly designed and motivated SCISPs cropped up throughout Central America in the early 1940s, providing a semi-independent liaison between host country governments and the U.S.-based SCISP parent organization, the Institute for Inter-American Affairs.

In original policy papers and declarations, SCISP identified as one of its primary objectives the extension of existing malaria control work. Among these existing efforts were several largely informal, ad hoc malaria control experiments in and around United States military facilities in Guatemala -- including some of the initial tests of residual insecticides promising more cost-effective and permanent ways of controlling the vector.

SCISP collaborated with the PHD in completing four malaria control projects in its first two years in Guatemala. These included engineering works in two major coastal cities, a large source-reduction project, and the initiation of basic investigations and research programs to improve the quality of information for policy-makers.
These initial efforts were well-received, and the cooperative agreement between SCISP and the GOG continued, with the GOG agreeing in 1944 to share equally in the costs of SCISP activities. More than a decade later, SCISP would become one of many groups responsible for administration of SNEM in its first three decades.

AID participation in the MEP was divided into two distinct phases. The first, lasting from 1958-64, consisted of matching grants to the GOG to support SNEM, backstopping UNICEF vehicle, insecticide, and medicine acquisitions, and provision of a malaria technical advisor through 1963. The second, from

1967-70, was a loan to the GOG (subsequently amended to include additional funds), and involved only periodic technical assistance and project review. UNICEF was mainly responsible for supplying insecticides, vehicles, and other project equipment (pumps, sprayers, etc.). PAHO was a continuing source of technical assistance, and also periodically provided modest amounts of supplies and materials.

Over the entire period of AID involvement (1958-70) total funds spent by the four major parties totaled $19.8 million. Guatemala supplied some 48 percent, followed by AID grants and loans (26 percent), UNICEF (18 percent), and PAHO (8 percent).

3. SUSTAINABILITY

In terms of the specific criteria of maintaining project outputs over a three to five year period after AID withdrawal, the Guatemalan MEP was sustained:

1. Malaria rates dropped for four years before turning up slightly in 1975. Even the near-doubling of the rate in 1986 left it lower than the rate of 1970, when AID funding ended.

2. UNICEF had made it known that it would be pulling out shortly after AID, and its contributions fell off rapidly through 1973. AID policy interests were turning to other areas and it was unlikely they would be supporting malaria after 1970. Nevertheless, the GOG rapidly took over and even accelerated project financing, at least in nominal terms.

3. Most of the important program activity levels were also sustained or increased after 1970:

   a. Blood test sampling levels remained consistently well above HO guidelines, but at a relatively constant percent of the population.

   b. Reported cases dropped while sampling sizes increased over the 1971-75 period.

   c. The passive case detection system was expanding by 200 to 300 volunteers annually, and SNEM outreach workers, while cutting back on the high testing levels reached in the last two years of the project, still made more house visits annually.

   d. Spraying operations reached anywhere from 600,000 to 3 million people annually, even though SNEM slashed the number of sprayers in 1971.

By all outward appearances, Guatemala had reached a consolidation stage, and SNEM activities were consistent with that interpretation.

What really suggests the sustainability of this program, however, is a series of pragmatic adjustments that took place during the early 1970s, all of them reflecting a managerial transition to control strategies and away from costly, high-risk eradication strategies. If the extensive, multi-lateral efforts of 1956-70 were unable to reach the eradication goal -- a possibility that at the time was not yet entirely ruled out, just not expected -- then it was most unlikely to be attainable independently. Since complete abandonment of the malaria program was inconceivable, and local support for eradication could not be expected, the only realistic option was to move towards a restructured program emphasizing control over eradication.

The seeds of this change were planted during the troubled 1964-66 period and fertilized by the realization that Guatemala would be bearing the lion's share of MEP expenses in the future. The products included increased, but still only partial, integration of the MEP into the MOH, increased discussion and application of control-type resource allocation, and a gradual lowering of the institutional profile of SNEM. While talk of eradication would still dominate the public discussion, SNEM was in fact shaping itself and being shaped by higher authorities for a different, more sustainable role of controlling malaria.

Evidence began accumulating early in the program that eradication might not actually be as technically feasible as originally thought, or at least that the estimated time required (eight to ten years) was overly optimistic. Guatemala encountered vector resistance just over two years into total coverage spraying operations in malarious zones. The shift to DDT apparently produced a sharp drop in incidence rates, although the reliability of activity and output statistics is questionable for so early a period in the MEP. (Figures 2 and 3.) But this shift also increased operating costs by requiring twice the spraying frequency. Pockets of resistance to DDT would soon be discovered, and news of setbacks and delays in other eradication programs was abundant.

Under these circumstances, program managers, advisors, and funders could logically begin to think about returning to the control principle, even if obliged to continue speaking of eradication in public. If eradication were shown to be unattainable, the sustainability of a program would depend on how rapidly and effectively it was able to shift over to a set of attainable goals, such as an adequately defined control level.

Accordingly, the sustainability of this program was enhanced by realistic adjustments to changing conditions, including the implicit goal change from eradication to control. Nevertheless, the MEP requires some additional future changes, particularly in the structure and use of its management information system. Many program elements designed for an attack strategy are unsuitable or even inappropriate for malaria control.

4. CONTEXTUAL FACTORS

4.1 Natural Disaster

Although the earthquake of 1976 did require some additional emergency spraying activity, its effects on the operations of SNEM were not all that great. The major effect of the disaster was indirect -- it produced a large, one-time shift in public spending priorities. Expenditures in other public programs soared almost 45 percent in 1976, while the Ministry only spent marginally more than the year before. Although the Ministry and SNEM budgets grew strongly over the next five years, many MSPYAS officials felt that the gap was never really closed, and that health care priorities in general suffered as a result of the earthquake. The data neither support nor reject this position unequivocally, but the impression appears to have been real enough for public health officials at this time.

In any event, the earthquake came six years after AID withdrew from the MEP, and is therefore immaterial to the immediate question of sustainability.

4.2 Political

From the beginning of the project to nearly the conclusion of the five year evaluation period following AID withdrawal, Guatemala was ruled by a series of unstable military governments. While political instability is not generally conducive to sustainability, the malaria eradication project was largely isolated from these effects. SNEM was a vertical organization with its own internalized support systems and some heavy international players on the team. This served to buffer it from the effects of political instability.

The economic benefits resulting from cultivation of additional lands also created interests groups with a stake in the continuity of the malaria program. Compared with the real and potential benefits of eradication or control, the fiscal burden SNEM placed on the GOG was quite small, while the political repercussions of failing to adequately support the program were potentially large. Several informants reported that

the economic significance of the MEP was recognized by all political regimes, civilian and military, and that political support for SNEM was always high as a result.

Despite continued political instability throughout the life of the project, political factors actually served to promote continuance.

4.3 Bilateral

During the 1958-70 period there was little direct effect of either international or regional politics on the project. If anything, increased U.S. interest in the entire region following the Cuban missile crisis encouraged ever more cordial and accommodating relationships with host governments.

U.S. development assistance priorities changed considerably during the course of this project. At the end, AID interest had shifted to rural water systems and latrines, primary health care, child-survival, and family planning issues. The effect of this was to pressure Guatemala to assume full financial responsibilities for the Malaria Eradication Project and avoid the kinds of political backwash it had felt in 1965-66. The financial burden was heavy, but the GOG did continue and, in some ways, expand the program.

On balance, there do not seem to have been any significant effects on the project resulting from the state of bilateral relationships. It is plausible that the large number of other AID assistance projects -- in education and economic development as well as health -- that were in place or just starting up in the early 1970s led to support for the malaria program as a show of "good faith" by the GOG. This conjecture could not be confirmed, however.

4.4 Socio-Cultural

The overall eradication strategy may have been technically sound, but it included many elements that proved unacceptable to the people who had to cooperate to make it a success. Spraying schedules were based on program needs rather than the convenience or wishes of the community. Evidence of malaria outbreaks would attract a SNEM team to administer drugs that many people felt just made them feel worse. Although "free" presumptive treatment was to be provided, a blood sample was required beforehand and this was a "cost" to many. These and other elements of the eradication program demonstrated a failure to understand and tailor strategies sensitive to the diverse social and cultural groups to be encountered in a national outreach program.

Interestingly, many officials felt that the level of cooperation received from the indigenous population was greater than that of ladinos, even though the program was much less responsive to their socio-cultural conditions. Generally, this was attributed to the relatively greater susceptibility of the indigenous groups to malaria, largely because of lack of significant exposure (and consequent lower resistance to malaria) until the MEP opened the Pacific coast to cultivation and created a seasonal demand for their labor.

Recently, the Division of Malaria has undertaken several studies and experiments designed to surmount these hurdles and increase responsiveness of the malaria control strategy to socio-cultural factors. These efforts are part of a broader strategy to integrate or coordinate appropriate aspects of the malaria program with the primary health care system.

4.5 Economic

Benefiting from favorable economic conditions and growing public budgets, the Ministry was able to absorb MEP costs in the early 1970s without sacrificing on its other programs. From 1970 to 1980, SNEM spending grew an average 15 percent annually, but it failed to keep pace with either the Ministry or the GOG, both of which spent an average 20 percent more each year.

Early in the decade, however, rapidly increasing insecticide costs and decreasing effectiveness created economic pressures that helped reinforce the return to control strategies. The heavy reliance on foreign markets for insecticides was problematic and resulted in a public renunciation of the policy of total coverage spraying operations. This "renunciation" represented no real change in the MEP strategy, which had been phasing down spraying operations for some time. It merely made this policy and/or practice public.

The economic significance of the malaria program was clear by this time. Increased cultivation of export market crops had been responsible for a large part of the economic advance realized in the 1960s, and the relationship of this expanded output to malaria conditions did not escape attention. Guatemala would be willing to spend a great deal of money to preserve these gains.

In summary, economic factors worked strongly in the direction of sustaining the MEP in Guatemala.

4.6 Private Sector

The nature of malaria control programs do not lend themselves readily to extensive use of the private sector, as centralized coordination is a prerequisite. Thought has been given to contracting for spraying services, but the sporadic nature of these operations and the need to supervise them makes this impractical.

Throughout the history of SNEM there have been continuous but limited programs undertaken by large businesses and farms. These typically involve spraying efforts on their own property and the conduct of presumptive treatment programs, especially where migrant workers are involved. The costs of these programs are borne by the private sector, and the work is usually done by their own personnel under SNEM supervision. The extent of these efforts was quite small in comparison with the regular level of activity of SNEM.

The private sector has cooperated with SNEM and covered some of the costs of spraying and treatment programs. However, no organized private alternative to public provision of malaria eradication or control services exists, and this factor had no bearing on the success of the MEP.

4.7 Implementing Institution

In terms of the day-to-day work on an eradication program, the Guatemalan MEP was carried out almost exclusively by SNEM personnel. Leadership was quite stable throughout the project and afterwards. These individuals reportedly benefited greatly from the early leadership and training programs provided by SCISP. They were a well-qualified and motivated group, but they were effectively following a general plan laid out by others, contributing their local experience that could be useful in tailoring the general strategy to Guatemala. When problems were encountered in implementing the eradication program, policy decisions were normally not taken independently at the country level.

SNEM was a highly vertical organization at the outset of the eradication program. Its hierarchical structure and independence remained largely intact under a succession of different administrative units within the Ministry. Only in the early 1970s, when administrative authority over SNEM was passing from Direccion General to the Malaria Division, did "integration" come to mean something more than a nominal line in an organizational chart.

Purchasing programs were further centralized, taking control over supplies further from the hands of SNEM. The result was sometimes disastrous. In 1977, a year which saw an extraordinary increase in reported malaria cases, not one house in Guatemala was sprayed because of failure to receive supplies. Labor legislation has restricted the flexibility of SNEM further, and it no longer pulls as much weight as it did during the height of the campaign.

Nevertheless, SNEM retains to this day most of the characteristics of a vertical organization, although recent changes in the leadership of the Malaria Division forebode more serious and concerted integration efforts in the near future.

4.8 Other International Donors

AIL, PAHO, and UNICEF had pretty well defined their respective roles at the beginning of the regional program. ICA/AID would subsidize local (primarily labor) costs, UNICEF would concentrate on materials supply, and PAHO would provide the major front line TA ingredient. Everyone was to have a say in developing the country strategy and regional coordination plan. These relationships were stressed during the course of the project, but basically held true to the end. Indeed, the high degree of coordination between these groups was repeatedly cited by informants as a key factor in the early success of the program.

This multiple entity involvement is a form of the "bandwagon" phenomenon that occurs in many assistance projects. Donor groups are attracted to or approached for the same projects at the same time, and this frequently means that they will also be withdrawing their support around the same time -- as occurred in the malaria program. Even though the MEP has been sustained, the transition was more difficult than it would have been if donor involvement were sequenced or staged.

Referring back to Figure 1, the different funding patterns of AID and UNICEF during the latter stage of their involvement are striking. AID contributions were relatively uniform and high, but dropped off precipitously; UNICEF phased down, in contrast. The latter practice is much more conducive to project sustainability under most circumstances. (See Section 5.3.1.) Despite testimony to the effect that coordination among AID, PAHO, and UNICEF was high, the near-simultaneous withdrawal of these three placed a considerable financial burden on the MOH and strained GOG resources all the more. Accordingly, donor coordination -- considering only the financial aspect here -- is considered to have inhibited sustainability in this case.

4.9 National Commitment

The local benefits of the demonstrated ability to control and anticipated ability to eradicate malaria generated considerable national interest and support for the MEP. Guatemala was just as caught up in the global excitement over eradication as others, and, more pragmatically, public officials saw the opportunity to multiply the effects of public investment with the anticipated international technical and financial assistance.

This high level of commitment to the project contributed greatly to its sustainability, and there is only marginally less support for the goal of controlling malaria.

5. PROJECT CHARACTERISTICS

The general PAHO malaria eradication plan provoked little discussion or negotiation with host governments following its introduction and refinement during the 1950s. This strategy detailed an 8-10 year program (depending on starting conditions) involving three phases: (1) two years for identifying and classifying malarious regions and for institution building to carry out the subsequent program; (2) four years in the "attack" phase involving regular residual spraying of houses in the malarious regions; and (3) four years dedicated to consolidation, or identifying and responding to residual problems with radical treatments.

5.1 Negotiation Process

Very little negotiation on the technical aspects appears to have taken place in this project. Technical requirements and characteristics were mainly determined by international groups. The GOG assisted in this process by legally requiring cooperation from citizens and the private sector.. The basic belief was that the strategy needed to be applied uniformly and simultaneously. There appeared also to be a sense on both sides that the technical aspects of an eradication program were specialized knowledge, and that little would be gained from such negotiations.

The GOG had more of a role in negotiating the funding of the project once technical plans were prepared, and in the application of specific technical criteria to local conditions, but their hands were often tied by a long series of accounting restrictions and technical guidelines. Although the project was not collaborative and negotiated, it was nevertheless sustained.

5.2 Institutional and Managerial Characteristics

5.2.1 Vertical/Horizontal

After more than thirty years of frustrating flirtations with the prospect of malaria eradication many developing country health care officials are quietly returning to the control strategies and principles largely set aside when eradication campaigns were first mounted. As a result of these reformulated, more modest aims for malaria programs, the vertically organized, semi-autonomous units created by many countries to direct their campaigns are now under fire.

Citing ineffectiveness, increasing costs, and the appearance of many new and promising public health care innovations competing for public health care funds, many interested observers are now urging dismantling of these units and integration of their functions into the regular operations of public health ministries -- putting malaria control resource allocation decisions more on a par with other basic public health care concerns.

As discussed above, this process of integration has been going on for some time in Guatemala. SNEM began as a classic example of the vertical organization; while it has taken on more and more of the characteristics of an integrated program over time, it retains much autonomy to this day.

Once SNEM was organized and operating, the inputs and activities of major donors were in effect being "integrated" into this vertical program. Technical advisors were, of course, always on the scene, but the normal operations of SNEM in no way depended on their contributions.
These normal operations consisted in the execution of a plan of action that had been jointly agreed to by all parties beforehand, and that specified the roles and responsibilities of each.

The experience with SNEM is consistent with the hypothesis that vertical organization promotes sustainability.

5.2.2 Managerial Leadership

Many original SNEM managers were drawn directly from the higher ranks of the Ministry's General Directorate.
They were familiar with the previous efforts of the Malaria and Epidemic Diseases Section, and most stayed with the SNEM for extended periods of time. Their institutional memory was an important factor in adopting new strategies for the 1970s.

Stable leadership promotes sustainable projects, not just by promoting policy stability, but by having demonstrated the ability to know when and how to change, as did SNEM managers in the 1970s.

5.2.3 Administrative Systems and Training

The early administrative training and support provided by SCISP has been cited frequently as a key ingredient in rapidly building the institutional capability of SNEM. SCISP also developed an excellent set of training materials that served to prolong the benefits of this activity. PAHO provided funds and scholarships for training administrators and professionals abroad, and regular meetings were held within the region for directors of MEPs to permit first-hand sharing of experiences with particular administrative, technical, or professional matters.

Project evaluations and audits conducted by groups at different stages of the project could find little to criticize about the administrative aspects, and often observed just the opposite --that the program was being administered quite effectively, but was plagued by technical problems.

Although there has been no consistent follow-up on the early administrative systems and training by SCISP, that original effort was sufficient to establish the strong administrative structure needed to maintain a vertical organization and the internal management development mechanisms required to keep that structure strong in the future.

5.3 Financing

5.3.1 National Absorption

Hardly any provision was made for national absorption of the costs of insecticides, fumigants, and related materials, most of which were provided by UNICEF up through 1973. UNICEF had been sending signals for some time that there was concern over how the MEP was evolving and whether it was something they should be involved with in the first place. This internal debate went far beyond the parochial concerns of Guatemala; during this period UNICEF was providing similar malaria eradication program support in scores of other countries, and this had become the single largest line item in their budget.

The U.S. contributions and loans were picking up a share of local costs, primarily salaries. These allocations were comparatively stable and predictable, and accordingly easily

anticipated in the GOG budgeting exercise. Nevertheless, when AID ceased its direct grants in 1964, the GOG was not prepared to make up the difference, and total expenditures in the program fell more than 25 percent in 1965.

This was a difficult period for the SNEM. No one knew for sure when and if more American support would be coming, and there was an emerging consensus to dismantle the antiquated Servicio Especial de Salud Publica (SESP) that had taken over administration of SNEM from SCISP in 1963.
This in fact took place in 1966, when the SNEM obtained semi-autonomous existence within the Ministry, reporting directly to the Minister. The inability or unwillingness of GOG to increase the SNEM authorization may have been affected by these factors, or it may have been attributed to the widespread corruption attributed to the time. Whatever the cause, the result was politically damaging and embarrassing to the GOG, which may have played a part in the GOG's quite different response in 1971.

PAHO contributions grew steadily through 1964, dropped over 35 percent the following year, and then stabilized at an intermediate level through 1970 when the Revised Three-Year Eradication Plan ended. Thereafter, PAHO funds were reduced greatly, but this organization has been a consistent source of assistance to the SNEM and Malaria Division to this day.

The nature of the AID grant and loan agreements with Guatemala poses a problem for examining the hypothesized relationship between cost absorption and sustainability. During the early years of the MEP the GOG contribution was relatively stable. However, this was as much a product of the nature of its matching grant agreement with the United States and the desire of the U.S. to spread its contributions equally over the term of the project. Following the fiscal turmoil of 1965-66, the U.S.-GOG Loan Agreement indirectly called for similar stability in national malaria appropriations by specifying precise total cost shares that should be maintained. As a result, in both stages of AID involvement there were explicit restrictions written into the project that limited the tendency and incentive of the GOG to phase in higher appropriations.

On the other hand, the loan amendment authorizing an increase of $630,000 was expressly requested by the GOG, even knowing that in accordance with the loan conditions they would have to put in almost twice that amount. This is de facto cost absorption, and it supports the hypothesized relationship between this factor and sustainability. Further evidence was seen in Figure 1. The GOG not only absorbed these project costs when AID left the picture, but provided for an impressive growth in malaria expenditures through 1981.

5.3.2 Foreign Exchange

The purchase of insecticides, larvicides, fumigants, and related materials is the largest single component of the MEP potentially requiring foreign exchange. A strong surge in the Guatemalan economy during 1972 made absorption of MEP costs comparatively painless, and SNEM had already identified some local sources of these materials that would reduce the need for foreign exchange.

This problem grew over time, however. Resistance to DDT required the purchase of the considerably more expensive Propoxur. Despite growing GOG appropriations for insecticides, by 1974 the Division of Malaria -- which had subsumed SNEM in mid-year -- took the "rational" choice of restricted, priority area sprayings rather than continuing to attempt to provide blanket coverage in malarious areas. This marked a significant step back from the eradication strategy, and the dismissal of large number of sprayers and field personnel in 1971 suggests that this change had been under consideration for some time.

SNEM also experienced significant delays in its purchases due to the high foreign exchange requirement, and the spraying program was paralyzed for a large part of 1974. The following year, the consistent decline in reported cases and malaria rates was ended, and a virtual epidemic was just another year or two away.

The high foreign exchange component was offset by adaptive management strategies (including reduced expectations) and did not prevent the project from being sustained.

5.3.3 Substitution Demand

Although the SNEM appears to have fared rather well in terms of executed budgets, it is interesting to compare how well other health and public programs were doing at the same time. Figure 4 provides one way of looking at this question, presenting the "relative spending shares" of SNEM, MSPyAS, and GOG in the funds that are theoretically available. For SNEM, the Ministry budget is the base; the Ministry base is total public spending; and the GOG draws from the Producto Bruto Interno (PBI), or GNP.

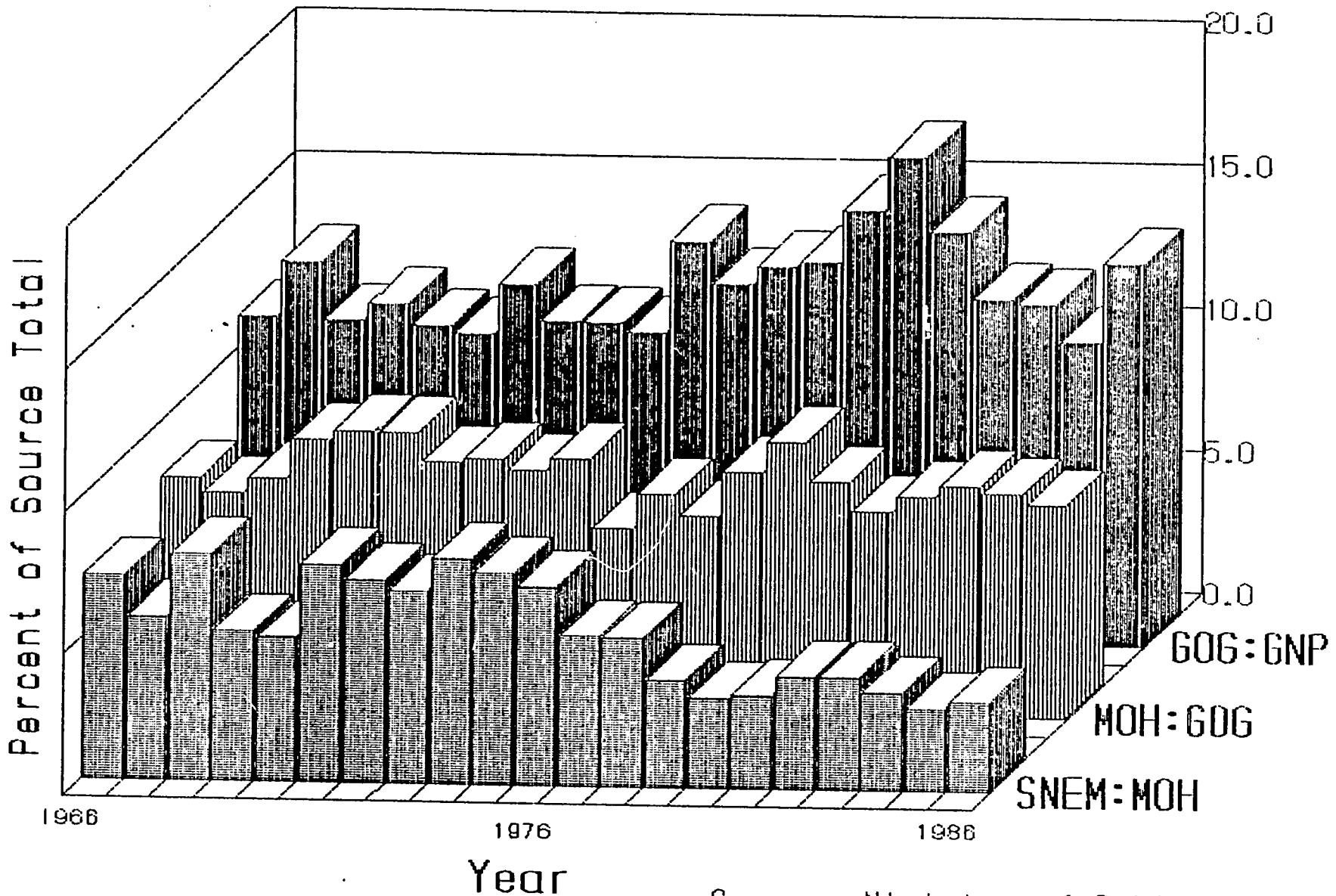
[INSERT FIGURE 4 AND TABLE 4]

Consistently, SNEM spent less of the Ministry executed budget than did the Ministry spend of the GOG executed budget. The same holds true for the relationship between MSPyAS, GOG, and PBI. But it is not the absolute levels that are of interest here, it is how the levels and differences in those levels change overtime, during periods of relative prosperity and declining fortunes.

Figure 4

Relative Budget Shares

GUATEMALA: 1966-86



Source: Ministry of Public Finance

page

Table 4

Comparative Spending Growth: 1971-85

Year	Expenditures Change (%)			Percent Change in GNP
	SNEM	MOH	GOG	
1971	55.5	1.5	1.8	4.2
1972	3.1	10.6	23.4	5.9
1973	5.6	11.3	9.5	22.3
1974	38.0	17.9	22.8	23.0
1975	10.3	17.3	12.1	15.3
1976	6.4	13.5	55.3	19.7
1977	0.6	33.3	12.4	25.5
1978	4.1	4.9	16.2	10.8
1979	1.4	41.4	15.3	13.7
1980	22.6	45.3	29.6	14.1
1981	8.5	5.3	22.8	9.2
1982	-9.2	-24.6	-14.1	1.3
1983	-6.2	-6.5	-12.8	3.8
1984	-6.3	8.3	3.1	4.6
1985	-14.2	1.9	4.9	17.5

Sources: SNEM Annual Reports.
Ministry of Public Finance.
National Statistics Institute.

Over the 21 year period, SNEM was responsible for an average of 5.4 percent of MSPyAS spending. The corresponding figures for the Ministry and GOG are 8.3 percent and 12.5 percent, respectively. But SNEM would not reach or near this average after 1976. A period of fortalization with the Ministry's own funds followed the end of the project, but SNEM significance in Ministry spending steadily declined and stabilized. The only resurgence appeared in the 1981-83 period, when, despite having lost some relative ground itself to other public programs, the Ministry provided more support for SNEM to fight the extraordinary outbreak of malaria. This is quite similar to way in which AID and UNICEF "primed the pump" from 1967 to 1970 before leaving the MOH to its own fiscal devices.

The implication of this trend is that SNEM was posing less and less of a threat to other public health care areas and programs, and acquiring a much lower institutional profile. Neither one of these trends need necessarily pose a threat to completing malaria control tasks in the long run -- the lower profile might even help.

The MEP required no shifts in national priorities at the beginning -- malaria had been a public priority with its own division in the PHD for more than a quarter of a century. There were numerous other AID and other donor agency projects on-going in the health sector during the period of the project and, according to the analysis above, SNEM would not appear to have been taking funds away from others. On each of these counts, the hypotheses relating substitution demand to sustainability are supported in this case.

5.3.4 Cost Recovery

There has been little or no effort to institute cost recovery mechanisms, other than the requirement for large employers to finance the costs of certain programs. To the extent that user fees would limit the use of the control system they would be counterproductive. According to a recent study, many people actually prefer to purchase their own medicines at present, perhaps because they are self-medicating due to an aversion to blood tests or the inconvenience of seeking professional treatment.

The absence of extensive cost recovery mechanisms had no effect on sustainability; in this case, their presence may have been harmful.

5.3.5 Cost Effectiveness

Although eradication was not achieved, the MEP did accomplish a number of other things that warranted the investment, simply by reducing and providing greater control over incidence rates. Corruption and waste were kept to a minimum, in part due to the vertical structure of the SNEM and in part due to the interest and involvement of donor agencies.

Operating procedures that were employed reflected the kinds of considerations that should be a part of technical performance monitoring and response procedures, although the quality of data did not support reliable calculation of performance indices. The quick detection of resistance to dieldrin, for example, indicated the existence and application of effectiveness measures. The "early warning system" of community volunteers in the malarious regions, while a "passive" system incapable of producing reliable data on incidence rates, was still an effective tool for identifying outbreaks and general trends to permit appropriate and timely response by the SNEM.

Along with the incalculable reduction in the human costs of illness or death from malaria, the program also made a substantial contribution to the economic well-being of the country. The Guatemalan economy is heavily dependent on agriculture. One of the major accomplishments of the MEP was to open up large amounts of land to cultivation, particularly the productive Pacific coastal regions. These gains are tangible and significant, and they depend on maintaining the area protected. Termination of the malaria program would produce large losses in production following vector resurgence.

From a long-term perspective (and benefiting from hindsight, of course), the original eradication objective probably has increased the costs of control methods substantially. Nevertheless, the MEP was an effective program that would seem to have more than justified the investment by the benefits it produced. This effectiveness, by providing an important economic benefit dependent on continued program outputs, has increased the sustainability of the MEP, in keeping with the expected relationship.

5.4 Content Aspects

5.4.1 Design

The basic eradication strategy to be applied in developing countries throughout the world was the product of WHO. The PAHO/WHO plan for Central America projected eradication eight to ten years following onset of the project and specified approximate times required for each of three program stages:

mapping and baseline analyses, attack, and consolidation. These program elements were carefully detailed in early training efforts and action plan developments, and they were understood at all levels of SNEM. Since eradication had to be an integrated effort among bordering countries, the staging and coordination of efforts was crucial.

While the goals were clear to all parties, they may have been wrong. Still, clarity of the goals encouraged sustainability and created the opportunity to shift to a more appropriate strategy in the future.

The actual life of the project and its costs were both much greater than originally expected, but the hypothesized relationship still holds: longer periods and greater investments (whether planned or acceded to) increase "sunk costs" in time and money and promote sustainability. This case is consistent with that hypothesis.

5.4.2 Training

Training was extensive and substantially internalized. For the large number of field workers, including sprayers and the wide ranging and growing network of community volunteer workers, technical training was comparatively brief and followed by OJT under the periodic supervision of experienced personnel. Equally important, positions awaited these individuals within the organizational structure of the SNEM. However, there was very little demand for these kinds of skills outside of the malaria program, so these training elements would be no more sustainable than other project elements. On the other hand, this increased the incentive for trainees to perform well, since there would be no place else to apply these skills. The combination of appropriate training, institutional absorption capability, and a "monopsony" (single buyer) in the labor market all helped to promote the sustainability of this project.

Over time, the Health Education Section of SNEM developed extensive public education and middle management training programs. For higher level administrative and technical personnel, specialized seminars, scholarships for overseas training, and funding for inspection visits of MEPs in other countries were provided. Individuals who benefited from these training efforts almost always returned to the SNEM to apply new skills or information, encouraging sustainability as expected.

Internalization of training activities is an effective device for maintaining autonomy and control over program direction, which in turn makes an organization more enduring. The major sources of pressures for changes in training (and operating) techniques were international and regional. As such, SNEM was further removed from local pressures concerning program operations, and better able to weather the first few years of independence.

5.4.3 Personnel Incentives

The division of technical labor within SNEM was effective, and different operating units were well coordinated. They were an elite and isolated group engaged in what they saw as a noble effort, so the internal esprit de corps was consistently high. Morale problems during the first 20 years could be traced mainly to "external" sources -- inadequate funding or excessive delays, inability of other organizational units to coordinate, and resurgence along borders that was routinely blamed on inadequate programs in other countries. This internal unity produced low turnover rates in management and professional personnel and encouraged sustainability.

Subsequently, as administrative control of SNEM was passed from group to group before settling in the Malaria Division, the increasing presence of other program activities demanding managerial attention and resources reduced these effects and the morale of SNEM workers. Increasingly, they saw themselves less as the elite strike force of the early stages of the program, and more as one of many divisions competing for attention and funding.

Nevertheless, the momentum built up during the project, probably reinforced by the desire to show that they could independently accomplish the task, carried over into the first years of the 1970s and encouraged sustainability.

5.4.4 Supplies and Logistics

The SNEM logistics system had received much attention during the project and was able to manage and move supplies quite effectively. These strengths carried over, and few problems were encountered with internal logistics initially. Over time, however, lack of complete control over the purchasing process caused great delays in acquiring insecticides that were adequately and disrupted attack operations, notably in 1977 when reported cases soared. The condition of the vehicle fleet also became a matter of some concern in the latter part of the 1970s.

5.4.5 Technical Assistance

Most of the on-line TA services were provided by PAHO. Program reviews did involve multi-national and multi-disciplinary advisors, but this may not have provided sufficient diversity in perspectives to encourage early review and reconsideration of the feasibility of eradication by the group that developed the program to accomplish it.

From a technical perspective, the TA was first-class, but from a planning perspective it was incomplete and biased toward short-term response procedures. Technical fixes were emphasized, and little thought was given to the potentially huge future technical and financial problems of failure, of trying subsequently to "control" a disease that had beaten off intensive efforts to eradicate it, and grown stronger in the process.

In enhancing the pure technical skills of the SNEM, PAHO TA helped them to perform their tasks more effectively and promoted sustainability. Although the eradication goal may have been pursued too long, SNEM technical personnel were better equipped to respond to whatever strategies management adopted. Accordingly, the TA provided under the project promoted its continuity.

5.4.6 Appropriate Technology

Several "technologies" were employed in the MEP to address different stages of the malaria cycle, but the most visible and costly of them was the spraying program central to the attack phase. The appropriateness of coating the interiors of homes with a lethal substance was certainly a matter of concern to their residents. Deaths of pets and other animals in and around sprayed houses brought predictable reactions and increased refusal rates, even though citizens were legally obligated to permit access to and spraying in their homes. Walls would be washed within minutes of being sprayed, without any follow-up by SNEM asking why.

Similar participant reluctance affected radical treatment programs (distasteful medications and side-effects) and use of community voluntary collaborators (the requirement to submit to a blood test before receiving medicines). For a control strategy, participant reluctance may not be too important; for an eradication effort it can be crucial.

The major technical problem for spraying and larvicide treatments is the seemingly inevitable development of vector resistance. If managers have rationally selected the cheapest insecticide that still does the job, the costs of spraying operations inevitably rise if resistance develops rapidly enough. Since resistance develops more rapidly the greater the exposure, unsuccessful blitzkrieg eradication programs will increase long term costs and quite likely decrease benefits in comparison with control strategies. Underestimating the adaptability of vectors and setting sights too high were the principal technical errors in the malaria eradication program in Guatemala and elsewhere.

Sustainability was not compromised by the use of some inappropriate technologies, and this created the subsequent opportunity to change or modify these technologies as problems were identified.

5.4.7 Community Participation

Community members had little or no say in the design of the program or its implementation.
Indeed, many aspects of the MEP were direct impositions on them without consultation or forewarning.

On the other hand, the network of community volunteers gave a role to local units. This "passive" detection system provided for community selection from among a list of qualified persons. That individual would receive brief training in blood sampling and dispensing of medicines, and would regularly be resupplied by the supervisor. This system has been examined and modified over time to make it more acceptable and effective in the community, and, with the exception of a "purge" of inactive volunteers in the late 1970s, the size and significance of this network has grown with time.

The participation of community volunteers filled an important gap in the program by providing a low-cost source of information from the field.
This enabled more effective response to changing conditions and contributed to sustaining the project.

5.4.8 Effectiveness

The effectiveness of the malaria control program is indisputable. Lives were saved and illnesses avoided. Economic productivity was increased by both of these factors and by the ability to cultivate larger portions of the arable land.
However, there was never any attempt to explicitly value any of these benefits, and the rising costs were more visible.
Similarly, when the program shifted to the more appropriate long-term strategy of control, it was perceived as having lost effectiveness rather than adapted to realities.

The cumulative gains achieved under this program, together with the realistic concerns over losing the benefits that had been achieved, combined to promote continued support of the project, albeit at a "diminished" level of seeking only to control and not to eradicate.

6. CONCLUSIONS AND RECOMMENDATIONS

This case study has produced some important methodological implications for sustainability analyses. The first has to do with clarification of the "dependent variable" we are seeking to explain -- sustainability, and the second with the multiple significance of an omitted "independent variable" -- secondary economic benefits and costs produced by the health project. The combination of these factors appears to have converted an unsustainable eradication project into a sustained malaria control program in this case.

The handling of the Malaria Eradication Program following the virtual termination of external funding in 1970 forces reconsideration of the way we interpret the concept of sustainability and how we know it when we see it. Had a four to six or five to seven year evaluation period been used, it would have been considerably more difficult to argue that program outputs were sustained. Some informants even suggest that the continuing improvements observed in the early 1970s were more attributable to the inertial effects of the increased level of donor-supported activities in the late 1960s than to the efforts of SNEM after funding ended. This is unlikely, but it points out the realistic possibility of gaming strategies in the design and execution of assistance programs, leading to projects which score high in meeting specific sustainability criteria but do not really promote the kind of institutionalization that is being sought.

Emphasizing sustainability of programs, projects, or components for its own sake is not the real objective; we want to be able to sustain the "good" effects of programs and terminate the "bad" ones. Rote repetition of past activities can only be taken as evidence of desired sustainability if it continues to accomplish the underlying health care objective. This is a minimum standard. Ideally, the objective will also be achieved as efficiently as possible, meaning that programs must be able to identify and adopt new ways of accomplishing the objective that save resources -- resources that can be put to use elsewhere or applied to extending or expanding the current program.

This means that the output and activities measures used to gage whether a project is sustained or not may change markedly over time. Shifts in the volume and type of program activity could be interpreted either as efficient managerial adaptive behaviors or as a failure to be sustained if rigid criteria are applied.

Another source of difficulty presented by the malaria case was the issue of changing goals. While it is desirable to make beneficial projects sustainable, and to build explicit features into the design process to achieve this, the fact that objectives change must not be overlooked. By virtue of program characteristics specifically selected to promote continuity, sustainable programs threaten to be less responsive to changes in goals or social preferences and to perpetuate themselves beyond the point at which they should be changed or terminated. A particular health care objective may lose relative priority or it may be dropped entirely -- for example, when it is found to be infeasible. Sustainable programs or projects must be flexible enough to adapt to changes of this sort in priorities and objectives.

The shift in goals of the Guatemalan malaria program from eradication to control reintroduced the necessary ingredient of apparent feasibility or achievability of organizational goals that had been lost. But it did so at the cost of losing clarity and adding controversy to the objective: eradication is a relatively unambiguous concept, while the notion of a "socially acceptable" malaria incidence rate is much fuzzier, and not something that is normally discussed in public by civilized people. Whether the topic is explicitly addressed or not, the amount and geographic distribution of resources allocated to malaria control provide implicit measures of such things.

Lacking clear and specific guidance about what is wanted and expected from the control program, however, it has been conducted somewhat haphazardly and inefficiently in the decade since malaria rates began to skyrocket. Nevertheless, despite bearing its share or more of the fiscal austerity measures taken in the early 1980s, SNEM activities helped produce a 45 percent reduction in the number of reported cases in just four years. This is an impressive showing, and underscores the fact that the main source of program inefficiency is at the planning rather than operations level. Informants regularly cited the dedication of field workers and their commitment to the objective. This same attitude apparently exists today, despite recent changes in labor laws that could be employed by field workers to reduce their level of effort.

The current programmatic thrust is to promote integration or coordination of appropriate aspects of the control program with the primary health care delivery system. This basically follows the pattern laid down some years earlier by the highly praised and successful tuberculosis campaign, beginning life as a vertical program that was gradually absorbed into the overall health system as conditions warranted. If accompanied by required education and training efforts, this should prove to be an excellent strategic move. Once again, however, it is focused more on the means than the ends of malaria control; specific objectives have not been established and the program may continue to lack direction as a result.

More generally, the malaria case suggests a kind of program life cycle or organizational evolution in which certain project characteristics may be desirable at one stage and undesirable at another. The original vertical structure of SNEM represented the most effective way of accomplishing eradication goals in the opinion of most technical experts. Even when the aim of the program shifted towards control, this organizational structure continued to serve it well for a period of years, when priority control strategies required rapid strike capabilities wherever and whenever an outbreak appeared. (Military metaphors were continuously employed by past and present Ministry personnel when discussing the structure and goals of SNEM.) This in turn required the ability to take relatively independent action.

SNEM independence of action was partially lost in a series of reforms that took place in the mid-1970s, including centralization of most government purchase programs. This resulted in damaging delays in the delivery of insecticides during 1977 and an absolute absence of spraying activity at that crucial point. The same kind of thing happened this year, when purchased insecticides only began arriving in late August in the midst of this evaluation. Recent labor legislation has also severely affected the response capacity of the malaria program by drastically cutting back its ability to rely upon field employees (sprayers, in particular) paid by the hour. Regionally centralized spraying operations are considered to be the likely response to this development.

In sum, the original vertical structure of the SNEM is being dismantled piece by piece as the malaria program becomes more and more integrated into the system.

The second major methodological issue raised by the malaria case was the treatment of important secondary benefits and costs. From a design perspective, health care projects that concurrently promote demonstrable and significant economic benefits for the domestic economy would appear to be much more sustainable. There are a number of reasons for this. Local constituencies are built that will support continued activity because they have an economic stake in the process of health care provision. In some instances, stimulation of local industrial development can work both sides of the foreign exchange issue -- increasing exports and decreasing imports.

The example of domestic insecticide manufacturing was provided by the malaria case, provoking much speculation about what the world would look like today had early efforts been made to stimulate this industry in Guatemala. There was, of course, little reason for donors to have seriously considered this alternative early in the project; they were expecting a brief if difficult struggle before transmission of the vector was blocked, after which time there would be a considerably reduced need for insecticides in the malaria program.

As thinking shifted over to the likelihood of a long-term control strategy, this option could have received more attention than it did. But by this time international manufacturers had more than enough time to establish their beachhead, and would have strongly opposed foreign stimulation of domestic insecticide manufacturing. With the kind of market that had developed for a primary input to a worldwide campaign, they also would have had the financial base to mount a very strong opposition. While the opportunity may have been missed in this case, future health care project designs should explicitly consider the issue of local market or industry development incentives. This point is related to the more general issue of linking intangible health benefits to concrete, visible economic benefits as a mechanism for promoting sustainability. Assistance project designers should look carefully for opportunities of this sort, and they should incorporate explicit mechanisms for estimating the magnitude of these secondary benefits and for making this information public.

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ANNEX E: FAMILY PLANNING CASE STUDY

OVERVIEW

The first family planning clinic was opened in Guatemala in 1965 by the private IPPF affiliate the Asociacion Pro-Bienestar de la Familia de Guatemala (APROFAM). AID's first family planning project was signed in 1967, and the Government of Guatemala (GOG) began offering family planning services through the Ministry of Public Health and Social Assistance (MSPYAS) in 1969. IPROFASA, a for-profit, private sector commercial retail sales program began service to commercial outlets in June of 1985. The fourth major family planning actor in AID funded projects in Guatemala is AGES, an association for family life education. AGES was founded in 1978 but did not begin receiving support from AID until 1985 (see Population Project Events Chronology, 1960-1987 in the appendix). AID assistance for family planning has continued uninterrupted up to the present with funding being channeled through the following projects:

Year	Project Number	Project Title	US Dollars
1967	520-0189	Pop. & Rural Health	2,642,246
1973	0189 extended		2,171,754
1976	520-0237	Pop. & Fam. Planning	2,921,000
1980	520-0263	Integrated FP Services	2,476,000
1983	520-0288	Fam. Planning Services	8,586,000
1987	0288 extended		3,434,000

AID's support for family planning projects was triggered by two concerns -- the high rate of natural population increase and the maternal and child health consequences of high rates of fertility, parity and illegal abortion. Although the Guatemala population was growing very rapidly in the mid-1960s, largely due to falling mortality rates, domestic support for family planning is overwhelmingly justified in terms of mother and child health and the right of couples to choose the number of children they wish to have. Article 47 of the 1985 Constitution guarantees this right. The GOG has never adopted a population policy, although the current administration of President Vinicio Cerezo has created a inter-ministerial commission to develop a Politica de Poblacion y Desarrollo (USAID, 1987:5). In view of the absence of a demographic rationale, AID has gradually adopted a strong family planning justification for its projects. Although fertility rates have dropped, population growth remains high due to decreases in mortality and relatively low rates of contraception, even for Latin America.

Throughout the history of AID assistance for family planning activities in Guatemala, its support has gone to a mix of public and private implementing agencies. In that regard, while the desired implementor has consistently been the MSPYAS, APROFAM has been the most important and consistent recipient. Aside from the Association's leadership role in the Guatemalan family planning movement, political factors (to be discussed later) frequently prevent effective use of AID funds for family

planning in the public sector. The ministry directly administered AID funds for family planning services from 1967 until 1975 when the mission withdrew its support because of poor performance (AID Project #189 Appraisal Report, November 18, 1976). In 1979 the ministry eliminated even APROFAM-supplied services from its facilities. Family planning services were resumed on a limited basis in 1982. Currently the ministry is directly responsible for supplying family planning services in 11 of the 23 health areas of the country with APROFAM responsible for the remaining 13. Officials from the ministry, Association and AID agree that the program would be stronger if the ministry were directly responsible for family planning throughout the country, and the Cerezo government is about, with Agency support, to implement full integration.

DETERMINATION OF SUSTAINABILITY

Early AID project papers frequently gave the impression, sometimes quite explicitly, that sustainability of family planning projects in Guatemala was possible. For example, Project Revision Paper No.1 (February 28, 1968) of the Population and Rural Health Project states that, "The project should be terminated in FY1972 on the assumption that GOG and private sources will be responsible for all future costs." And a latter project appraisal reports that by 1977 the ministry would contribute 100% of recurrent costs. The project paper for the Population and Family Planning Project predicts that by 1981 APROFAM should reach a cash flow level "sufficient to enable it to continue an expanded program without AID support."

Recent project papers have been more cautious and avoid a commitment to sustainability. The most recent paper, which proposes an extension of the Family Planning Services project, states that "Continued progress in the family planning sub-sector in Guatemala is . . . considered to be highly unlikely without the solid and continuous presence of AID support (AID, 1987: 4). This perspective is entirely consistent with that of our informants. None of the experts we interviewed felt that it was realistic to hold that family planning could become self-sustaining in Guatemala, except for perhaps the IPROFASA project, given the political climate surrounding family planning. We likewise hold this view.

Given the improbability of family planning projects achieving sustainability, the remaining task of this report is to explore the reasons why this is so and to assess how external assistance has contributed to expansion of family planning in Guatemala. The framework employed in the analysis is the one initially presented in the project design (Bossert, 1987b) and subsequently refined by the project team. An outline of the framework is found in the appendix.

CONTEXTUAL FACTORS

Contextual factors beyond the control of project designers and managers are important determinants of the fate of family planning projects in Guatemala. Although they set rather fixed parameters which are not manipulable, it is possible to fit effective, if not sustainable, projects within the Guatemalan context. Here we shall discuss only those contextual factors which were discovered to have affected family planning projects in a demonstrable way.

Political

There is little doubt that political factors play an important role in family planning projects in Guatemala and are the major reason that such projects were not sustainable. The documents we reviewed and interviews we conducted are replete with references to the political controversy surrounding the issue and the impact of national politics on family planning initiatives, public or private.

The appendix contains a table with a chronological listing of important political events in Guatemala over the period 1942-1987. This table makes it clear that the Guatemala political system has been rather unstable, particularly over the last decade. Consistent public policy is hard to elaborate and maintain during period of political instability because of the climate of uncertainty and turn-over in political and administrative leadership. There is evidence in the documents and from our interviews that family planning policy has suffered in the instability of Guatemalan politics.

The nature of the regimes also impeded the development of strong and consistent family planning programs. For most of the period the country was ruled by military leaders who took office under the facade of an election. Because of their de facto, imposed character, these governments were somewhat arbitrary in their policies. Our informants consistently reported that family planning policy, which experienced several abrupt shifts, reflected the personal views of the president and his minister of health rather than public preferences (which might have reflected the growing acceptance of family planning during the period) or the position of political parties. There is some reason to believe that this may change if the democratic constitutional rule is allowed to institutionalize.

In this context of arbitrary, unstable military rule full interest group participation in politics and policy-making was impossible. However, several organized interests were influential in shaping family planning policy. All sources report that the Catholic church was the principal force in opposition. Although the Church, which is stronger in Guatemala

than in other Latin American countries, in spite of the growing strength of local Protestant groups with international ties, has consistently opposed family planning, the impact of its opposition has varied due to the response of the government in power, the personal actions of the local hierarchy and the position the Pope. Curiously the recently elected Christian Democratic government does not seen overly vulnerable to church pressure and is going ahead with an expansion of family planning in spite of the outspoken opposition of the current Archbishop.

Other active opponents of family planning have included a local right to life movement with strong US ties, departments and professors in the national university and others. The most important group supporting family planning is APROFAM. It conducts a variety of activities designed to gain acceptance of family planning among the public and to win the support of opinion makers. It has been particularly important in counter campaigns in opposition to government family planning efforts such as that in 1985-86 which was particularly heated.

In view of the controversial, politicized nature of family planning, much less population control, in Guatemala it is not surprising that the government has been timid about embracing it. Under such conditions it would be unrealistic to expect current family planning projects to be sustained without external financing. In fact one informant argued that external financing is politically expedient since it deflects attention away from local agencies toward the external donors. It also seems reasonable to expect that private nonprofit organizations such as APROFAM will continue to play important roles.

Bilateral

We have hypothesized that the sustainability of health projects is affected by aspects of relations between the US and Guatemala. The appendix contains a chronology of important events in US-Guatemalan relations and clearly indicates that these relations do vary over time. Although there is no evidence to directly corroborate a relationship, there does seem to be a correlation between declining official support for family planning in the mid and late 1970s and growing hostility between the US and Guatemala over the issue of human rights. There is some evidence to suggest that the US ambassador by taking a personal interest, and perhaps more, offered some encouragement to local opponents of family planning in the 1985-86 controversy, which eventually included a White House appointed task force to investigate the local AID population program. Another bilateral variable which needs further investigation is the policies, personnel and budgets of AID/Washington and AID/Guatemala.

Socio-Cultural

The one socio-cultural factor which clearly affects family planning programs in Guatemala is the presence of a large, non-integrated indigenous population. In order for family planning to be effective and meaningful, much less to have a significant demographic impact, it must reach the 43% of the population which does not speak Spanish and which is cultural distinct from the dominant Ladinos in a variety of ways relevant to family planning and health care delivery. The very low rates of contraceptive acceptance among the indigenous population indicates that this has not yet happened. Major obstacles to its eventual fulfillment include, but are not limited to, the failure of the health care system to penetrate indigenous communities and the high level of suspicion between the Indians and Ladino health care providers.

Another potentially important socio-cultural factor with economic roots is the growth of a wage labor force in the Guatemalan countryside. This well documented phenomenon may open the possibility of incorporating large numbers of rural dwellers who were previously exclusively in the subsistence sector into the modern health care system where family planning could be made available.

Economic

Given the low level of Guatemala's development, its precarious economic position and the relatively weak fiscal position of the government, the prospects for the GOG sharing an increasingly larger share of the cost of family planning are not good. Up to this point, the direct cost have been borne almost exclusively by AID, and the recently signed project extension does not contemplate a major change in this practice. The external nature of financing may insulate family planning programs from government austerity programs and other shifts in budgetary priorities.

Private Sector

None of our informants seemed to feel that the commercial firms would ever make a major contribution to family planning, much less assume responsibility for it, unless subsidized through a social marketing scheme. As already discussed, however, APROFAM is and will continue to be a major force in the family planning movement, both as a provider and promoter.

Implementing Institution

Family planning projects are affected in a number of ways by the MSPYAS. As discussed earlier, the ministry's position on family planning has largely been dictated by the incumbent minister, and as the table in the appendix indicates, there has been a large turn-over in this position. Internal reorganizations and government health sector plans have affected projects in the past.

National Commitment

Recent surveys indicate a growing acceptance and practice of family planning among Guatemalans, at least in the Ladino community. However, there is no evidence that this is reflected in a national consensus in support of family planning as official policy and government programs. Perhaps an elite consensus will emerge under the newly inaugurated democratic government, but such a consensus does not now exist, and until it does family planning projects are not sustainable.

PROJECT CHARACTERISTICS

These factors are considered to be controllable by project designers and program managers. They can be manipulated so that processes can be established to guarantee sustainability once donor funding has ceased. They also can be manipulated to affect program performance in reaching project objectives. Since AID does not expect Guatemalan family planning programs to become sustainable nor does AID intend to cease funding them for some time, characteristics of projects will be reviewed in the context of reaching objectives. We will review those characteristics which we have found to affect expansion of family planning programs since increased accessibility has been the driving force behind AID's support.

Negotiation Process

Informants report that the process of negotiating family planning projects in Guatemala has been problematic and inconsistent because it depends on the personality and negotiation skills of the AID population officer. The reduction in AID financial support to the MOH in 1975 because of AID's discontent with the MOH's achievements of project objectives, and the subsequent cessation on the part of the MOH of all family planning activities in 1976, is evidence of negotiations breaking down.

Provision of services by the MOH in Guatemala has fundamentally been an AID initiated and AID driven activity. The MOH began offering services in 1967 with a grant from the AID Mission. Although there might have been consensus between the MOH and AID at the time the agreements were signed, the lack of internal consensus within the MOH to offer contraception, other contextual factors, changes in AID population officers and key MOH personnel affected the performance of the MOH program and their compliance with the project agreements to expand services. The MOH program has remained functioning in 11 departments for a number of years. Only recently has the MOH demonstrated interest in expanding its program to the remaining 13 health zones currently serviced by APROFAM.

APROFAM, on the other hand, initiated services two years before AID began supporting the agency. Both APROFAM and AID share similar global objectives but consensus does not seem to have always existed regarding the direction and expansion of APROFAM's program particularly to indigenous populations. This does not seem to have affected AID's support of APROFAM; it has been continuous since 1967. In all the available documentation APROFAM's performance is reported to be satisfactory. By and large APROFAM has complied with its agreements with A.I.D and has achieved or surpassed objectives established in project agreements to increase coverage of the Guatemalan population.

The establishment of IPROFASA by AID in 1982 and the substantial investment in AGES beginning in 1985 represent AID policy to meet a number of political and policy-type factors emanating from AID Washington, such as support of the for-profit, private sector. At the same time support of these agencies could be viewed, as one informant suggested, as options to increase access to services when negotiation with traditional service delivery agencies did not lead to the desired consensus.

Institutional and Managerial Characteristics

A review of line items by project and by agency shows that bilateral funds support both fixed and recurrent costs as well as incentive payments to key service providers. This has led to friction within the MOH because the money has supported a privileged, vertical structure outside of the normal MOH channels. Since many MOH health programs do not have adequate equipment, trained staff and medicaments, the contrast with family planning programs, which do possess these characteristics, created jealousies and worker discontent. Given the state of health service delivery in general in the MOH in the mid-1960's and the cost of supporting entire primary health care systems, AID may well have viewed verticality of the MOH program as potentially effective and efficient way to expand access to services. But the privileged nature of the family planning program backfired at times for AID Persons selected for training were not always chosen according to pre-established

criteria but rather according to political ties within the MOH. At any rate, informants insist that without this vertical support no services would have been provided at all by the government.

The stability and strength of APROFAM's leadership has enabled the agency to weather a severe attack from the right in 1986 and to survive in an often hostile environment. Management was able to organize APROFAM's defense through professionally executed media campaigns, technical presentations to policy makers on the implications for other sectors of rapid population growth and other activities. At the same time APROFAM's management has been able to incorporate changes into its program, such as widening the range of services offered, to counter political attacks while adopting a strategy hypothesized to bring greater success in servicing indigenous populations.

The three persons who make up AGES' leadership are the same individuals who founded the program. They provide stability to the AGES program but perhaps more importantly continuity. Continuity is important for the agency since much of their work depends on past experience and trial and error. There is little in the sex education/family planning literature to suggest successful methodologies for community work with indigenous groups. The kind of work AGES does requires the ability to reflect on past experiences and to make decisions about future expansion. Continuity of policy makers helps facilitate this process.

The MOH program has not had stable management nor strong leadership due to the lack of political commitment.

There exists in the country today a potential reservoir of individuals who could become leaders in family planning if the political climate changes or who might at some point be able to influence policy. These are persons who, according to one informant, received training under AID auspices through the projects reviewed in this case study.

Financing

Private sector family planning program managers have been encouraged for a number of years by donor agencies to assume increasingly greater fiscal responsibility for their program. IPROFASA is a good example of a program in Guatemala expected to reach self-sufficiency while at the same time expanding availability of contraception. To date, IPROFASA has not achieved that objective due to a number of factors, but recently has surpassed the sales goals set for it (see Table 1). Both AGES, through the sale of sex education materials, and APROFAM, by charging fees for a range of MCH services provided in APROFAM clinics, are attempting to increase income. Technical assistance is being provided by AID to help APROFAM identify

strategies for generating income. Nevertheless, there is a consensus among informants that the existing private sector family planning organizations in Guatemala will never be able to substantially recover costs. Minimally, contraceptive supplies will continue to be donated.

TABLE 1
Program Performance for the Family Planning Services Project

Activity	Scheduled LOP 1982	Scheduled Cumulative to Date 1987	Actual Cumulative to Date 1987	Percent of Scheduled Goal Achievement
I. APROFAM (520-0288 A)				
A. Community Based Distribution				
1. New Acceptors	140,380	100,380	105,209	105.0
2. Continuing Acceptors	93,585	77,091	73,547	95.0
3. Home Visits	200,500	153,325	144,047	94.0
4. New Distribution Posts	990	805	1,245	155.0
B. Training				
1. Trained Persons	3,811	2,575	3,292	128.0
2. Completed Courses	171	98	124	126.0
C. Education of Leaders (PIPOM)				
1. TV spots Transmitted	22	26	25	96.0
II. AGES (520-0288 AGES)				
A. New Sites	11	4	4	100.0
B. No. of Current Persons Served*	288,840	22,700	33,653	148.0
C. Trained Persons	241	44	53	120.0
III. IPROFASA (520-0288 CRS)				
A. Product Sales	800	408	446	109.0
B. Couple-years Protection	27,700	19,700	24,411	124.0
C. Introduction of Addit. FP Products	3	3	1	33.0
D. Outlets Supplied	1,300	640	742	116.0
IV. MOH (520-0288 G)				
A. Contraceptive Distribution to Health Centers and Posts				
1. Orals (cycles)	550,000	305,000	116,103	38.0
2. Condoms	630,000	325,000	161,931	50.0
3. Conceptrol (tablets)	545,000	400,000	3,633	1.0

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B. Training of MOH Personnel in FP, No. of Courses	48	18	6	33.0
C. 11 Health Areas Transferred from APROFAM to the MOH	11	9	0	0.0

* Received family life education material, participated in family life education activities or received additional guidance.

Source: USAID/Guatemala, Project Paper Supplement, Expansion of Family Planning Services Project No. 520-0288; 1987.

APROFAM has carried out a number of studies to identify cost-effective delivery strategies to expand services, particularly for its voluntary surgical contraception program. Cost per couple years of protection (CCYP), a standard measure of cost-effectiveness of family planning programs, is routinely used by IPPF affiliates as a management tool. CCYP estimates for APROFAM's different service delivery programs (CBD, clinical, IE&C) are reported in the American Public Health Association's 1977-79 assessment of the bilateral program. It can be seen that APROFAM, in the past, has sustained a relatively cost-effective program mainly because of the proportion of sterilizations performed versus other methods. Sterilizations provide significantly more years of contraceptive protection than other methods.

AID has funded at least two-thirds of the resources required to execute the family planning projects reviewed in this study. Currently over 95 percent of AGES' expenditures are paid with bilateral funds; APROFAM reports that fifty percent of its program expenditures are covered by AID IPPF funds another 20 percent of APROFAM's program while the Association for Voluntary Surgical Contraception around 10 percent. Both agencies report that AID's share represents a greater proportion of their budgets than in the past due to increased interest in expanding services to indigenous and rural populations.

With the incorporation of primary health care services into APROFAM's services in the last four years, such as ORT, and an increased emphasis on reaching indigenous populations, the costs of sustaining APROFAM's program will increase. Whether they remain equally cost effective depends to a large extent on the acceptance of family planning by the target populations and the mix of methods. The kinds of systems (CBD, clinical, social marketing) and delivery strategies (mobile units, house-to-house distribution) and subsystem characteristics (frequency of supervision and re-supply systems) will affect how well APROFAM achieves it objectives and the costs of achieving them.

Couple years of protection is being calculated for the IPROFASA project and cost records are maintained so that CCYP can be estimated. However, coverage indicators (numbers of contraceptive users attended, methods distributed and use prevalence rates) seem to over-ride cost-effectiveness concerns at this stage for AID in Guatemala. Perhaps as the family planning program matures, as in Colombia and Brazil, cost-effectiveness and quality of care issues will move to the forefront.

Content Aspects

AID projects in Guatemala are designed to increase access to family planning services by support of a number of institutions in both the private and public sector. This strategy helps insulate the project objectives against uncontrollable contextual factors. They are vertical programs supporting extra-official positions, in the case of the MOH, to manage them. In project documents objectives are fairly simple and clearly stated. Project designs promote a variety of delivery systems such as CBD and clinical which permit service providers to offer a wide range of methods. Although projects have specified expansion of services into rural areas and among indigenous populations, women in these areas have the lowest contraceptive use rate. Current approaches do not seem effective in reaching this population.

APROFAM has supplied MOH posts and centers with contraceptives for a number of years. Assessments of both APROFAM's and the MOH's logistics systems have been carried out by AID funded consultants; AID has funded technical assistance to APROFAM to establish an efficient and effective logistics system as well as in other areas of program management and service delivery. Technical assistance has also been provided to the MOH as in the SINAPS, PRINAPS and CAPSVO projects with mixed success. Personalities and other personal factors of the technical assistants and the AID population officers have played an important role in the acceptance of assistance by the MOH.

Guatemalan family planning programs have always offered a range of contraceptive methods. In the 1983 Contraceptive Prevalence Survey female sterilization was reported as the most popular method drawing criticism from some groups in the country.

One of the most noteworthy characteristics of AID funded population projects is training. Substantial sums of US government money has supported training as a way to enhance local technical and managerial capability to administer family planning programs. A wide range of individuals have been trained over the years from medical doctors to secondary school teachers. Some recipients have been trained abroad (US, Colombia) in fields such as contraceptive technology and demography. We do not have information on the total number trained under AID projects since 1965 much less the numbers who continued to work in the field of population once trained.

Project Effectiveness

The fundamental concern of AID funded family planning projects in Guatemala has been to expand service delivery so that couples who desire to plan their families have access to contraceptive information and methods. Increased access would

lead to greater use which would affect high population growth and abortion rates and high infant mortality. It is clear that AID funds have enabled the number of service delivery organizations to increase. The availability of contraceptives has remained steady due to AID importation of methods.

Some modest demographic changes have occurred in Guatemala since 1965 when AID began funding family planning programs. The total fertility rate (the number of children the average woman will have over her reproductive life) has declined from 6.85 to 5.17. The rate of natural population increase dropped from over 3.0 to 2.9 per cent per year. Infant mortality is estimated to be 68 per 1,000 live births while in the period 1960 to 1965 it was 144 deaths per 1,000 live births. Contraceptives are being used by 25 percent of the women in union who are between 15 to 44 years of age. Most use is among urban Ladino women and in Guatemala City 50 percent of the women in union are planning their families. A national demographic and health survey will soon be carried out in Guatemala which will give government and donor agencies up-to-date information on recent demographic trends since the last survey of this type was implemented in 1983. Abortion, although under-reported, was the cause of about half of the maternal deaths according to the 1977 Health Sector Assessment carried out by AID in 1977. In 1983 it was the second cause of maternal mortality in Guatemala.

We were unable to track quantitatively the achievements of each specific objective for each project. A number of project evaluation summaries exist in AID files. These list inputs and outputs for different years for the projects and discuss issues and lessons learned. From these appraisals it is clear that AID has been generally satisfied with the projects but would like to see more done to expand services. Coverage and training goals are frequently surpassed in AID projects, as shown in Table, although it is not clear how these targets were set and how they relate to overall coverage objectives.

SUMMARY AND CONCLUSION

Over the years AID projects in Guatemala have trained hundreds of health professionals and para-professionals in family planning. Four APROFAM clinics built with AID funds still function today and thousands of pamphlets and other IE&C materials have and are being designed, printed and distributed throughout the country on sex education, responsible parenthood, AIDS, contraceptives and other related subjects. Through AID MIS systems have been developed, new management techniques and administrative procedures have been introduced by support of extensive technical assistance to family planning organizations in the country. Demographic and other socio-economic research has been conducted in Guatemala providing valuable information

for health and family planning decision makers. A intangible product is the constant promotion by AID to provide services to indigenous populations as an effective health intervention to reduce infant and maternal morbi-mortality.

In view of the highly politicized nature of family planning and the lack of a national consensus in support of official program, the prospects of projects in this area being sustained on a significant basis in the event that AID funding is terminated appear non-existent. Nonetheless, the Ministry of Health is about to expand its program to provide services in the 13 health zones APROFAM is currently covering. The kind of assistance the MOH is now receiving from AID appears to focus on one single activity (supervision) and exclude incentive payments and other recurring service delivery expenditures which existed in the past. Funds for supervision basically cover vehicle, transportation and per diem costs to visit centers in the 11 zones where the MOH program functions. The line item salary does not appear in the proposed extension of the Family Planning Services Project for the MOH. Two informants believe the MOH could indeed sustain a family planning activity as part of its MCH program with little or no reliance on AID providing political and other contextual factors were more favorable. Under those circumstances other donors, like the UNFPA, would supply contraceptives since they are not manufactured in-country.

Private voluntary organizations such as APROFAM might be able to reach some level of self-sufficiency in the future through adoption of viable cost recovery schemes. However, since the purpose of these kinds of organizations is to reach under-served, poor populations, it is not reasonable to expect cost recovery schemes to contribute much. CRS programs, like IPROFASA, theoretically can become virtually self-sustaining as long as commodities are donated. In countries like Colombia this has occurred. However, CRS programs can become subject unexpected to government importation restrictions or price controls making them no longer are self-sufficient.

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ANNEX F: NUTRITION CASE STUDY: INCAP

1. OVERVIEW

Malnutrition is a significant health problem in Guatemala. National nutrition surveys since 1965 have found that over half the population suffers some degree of malnutrition. Protein-caloric malnutrition, hypovitaminosis A, iodine deficiency and iron and folate-related anemias have been identified as the priority nutrition problems. (INCAP, 1969; Arroyave, 1979; Westinghouse, 1987) Although good recent national level data is not yet available on current levels of malnutrition, most studies suggest a deteriorating trend in the 1980's. In particular, anthropometric indicators suggest that in the 1970's increasing numbers of children had low weight for height, and vitamin A deficiency and endemic goiter have been on the rise in the 1980's.(Sazo Palma, 1987)

One of the major institutions in Guatemala that is concerned with nutrition is the Nutrition Institute of Central America and Panama (INCAP). With the exception of the PL480 program (to be examined in a subsequent study), AID has supported nutrition projects primarily through INCAP. However, it should be noted that many other projects, both in the health sector and other sectors, have nutrition components or are likely to have an impact on nutrition. This study focuses only on those projects that were implemented in Guatemala by INCAP with an objective of directly bringing nutrition benefits to the Guatemalan population. We have not been able to consider the indirect impact of the many research projects whose published results have had significant influence on general knowledge in the nutrition field and have shaped thinking about nutrition projects throughout the world.

INCAP was founded in 1949 with support from Kellogg Foundation and PAHO and a six country agreement of the Central American nations and Panama. With an original focus on research and training, INCAP was a center for internationally recognized studies of the relationship between nutrition and infection. It was also the major training center for professional nutritionists in the region, affiliated in recent years with the United Nations University.

Beginning in the late 1960's a growing interest in more direct activities led to the strengthening of the Division of Applied Nutrition and a greater involvement of INCAP in promotion of nutrition planning and specific programs to impact on the nutritional levels in the member countries. First Kellogg and later AID, through its regional office ROCAP, provided additional grants to expand the division which by 1976 had eight professionals.(PER 78-8,596-0065) This process of shifting institutional priorities continued throughout the 1970's and was given a major push in the early 1980's with additional AID support.

Financially, after the initial Kellogg grants, INCAP relied on PAHO/WHO funding for most of its core institutional support until recently when AID assumed increasing financial responsibility for core institutional needs. In 1983, PAHO provided 38% of the $3.3 million budget. Member countries provided only 9% and specific projects, including AID, UNICEF,and several European bilateral projects, provided 47% of the yearly budget.(PP, 596-0104)

As a regional institution, INCAP provides services and studies for all of the regional countries. Its efforts until recently have primarily been focused on Guatemala, Honduras and El Salvador. However, under the current PAHO Central American regional initiatives and supported by significant AID and UNICEF funding, INCAP has now assumed a significant role and has established a permanent technical assistance presence in all five countries.

Past major AID-supported project activities of INCAP in Guatemala have included three central research projects (Growth and Development, Solola, and Patulul), three fortification projects (Salt Iodinization, Vitamin A Fortification of Sugar, and Corn Fortification), a major primary health service project in selected communities in the ladino eastern provinces (SINAPS), and support for nutrition planning efforts in the Planning Commission and MOH. A recipient of many grants from National Institutes of Health, National Science Foundation, and Rockefeller and Ford Foundations, INCAP has also implemented many research projects in microbiology and human development.

Currently INCAP has assumed new regional responsibilities, providing permanent technical assistance to coordinate several Child Survival activities of OPS, UNICEF and AID.

2. Prior Conditions and Project Inputs

INCAP was initiated as a regional institution -- and became involved in several project activities in Guatemala -- without direct AID funding. In addition to its continuing prolific technical research projects in nutrition, perhaps one of the more enduring impacts of INCAP's efforts, before AID began providing direct institutional support in the 1980's, was the professional training of nutritionists who have been fully employed in hospitals, schools, research institutions and other health and nutrition services, as well as occupying important policy and planning posts in government services. Many of the INCAP trained professionals were resources for later AID projects. Although some professional training continues in INCAP, many of the countries have incorporated nutrition training in their health professional schools. In Guatemala, the bachelor's degree in nutrition is now offered by the University of San Carlos.

AID inputs include a series of small projects (see Table I) in support of Vitamin A fortification of sugar, corn fortification with soy bean oil, a demonstration project with a highly nutritious corn hybrid and a project on functional nutrition classification.(Arroyave, 1979; INCAP, Corn, 1976) These projects made use of existing INCAP professionals, providing financial support for research and promotion of fortification policies and utilization of hybrid corn.

The second major type of AID project support was the Regional Nutrition Project which financed the technical assistance provided by INCAP professionals to support nutrition planning programs in each country in Central America.(PP and PER 78-8, 596-0065) In Guatemala this project resulted in the establishment of a nutrition planning unit (two professionals whose salaries were initially funded by AID) in the National Planning Commission, and technical assistance to this unit in its efforts to design a National Nutrition Plan.

In 1980's AID began providing core institutional support for INCAP through the Regional Nutrition Technical Outreach Project, an $8 million regional Child Survival project, which began in 1985, and a project to provide technical assistance to food aid (a $5.6 million project with PL-480 funds). These projects were responsible for strengthening INCAP's capacity to provide technical assistance on a permanent basis in each of the countries. On the basis of this new capability, INCAP has been able to coordinate additional regional projects of AID, PAHO and UNICEF, in particular the major Child Survival initiatives in oral rehydration, growth monitoring, immunizable diseases, health and nutrition education and breast feeding. These regional projects have had specific Guatemalan components, especially in ORT, breast feeding and immunization programs of the MOH Division of Maternal and Child Health. INCAP has provided technical assistance, assessments of institutional needs and inservice training. A reasonable estimate of expenditures of these projects in Guatemala is $3.72 million.

TABLE I

MAJOR AID-SUPPORTED INCAP NUTRITION PROJECTS
WITH IMPACT IN GUATEMALA

Number	Title	Dates	Amount ($million)
Past Projects			
TA-C-1225	Sugar Fortification	1967-8,75-79	.5+
CSD-3357	Corn Fortification	1971-76	.6
596-0065	Regional Nutrition Project	1976-81	3.5
932-0631	SINAPS	1979-82	1.1
TA-C-1342	Corn Hybrid Project	1981-82	2.8
596-0104	Regional Outreach Project	1981-85	1.8
	Nineteen Misc. Small Projects	1973-86	2.9
	Total	1967-86	13.2
Current Projects			
596-0115	ORT,Growth Monotoring and Education	1984-89	8.0
596-0116	Technical Support for Food Aid Programs	1985-90	5.6
	Six Misc. Small Projects	1985-90	1.0
	Total	1984-90	14.6

ESTIMATES FOR INCAP EXPENDITURE OF AID FUNDING IN GUATEMALA:

Past Projects Only in Guatemala	1967-86	7.85
One fifth of Past Regional Projects	1976-86	1.06
Total	1967-86	8.91
Current Projects Only in Guatemala	1985-90	1.0
One Fifth of Current Regional Projects	1985-90	2.72
Total	1985-90	3.72

3. SUSTAINABILITY

AID's support in the past was mainly for technical assistance, short term training and technical information dissemination in project related activities and less for research and training of nutrition professionals. Before AID began providing core institutional support, INCAP was primarily a research and professional training center and AID can take some responsibility for changing the orientation of the institution toward applied nutrition and the provision of continuous technical assistance to each of the countries.

The nutrition benefits to Guatemala, however, are hard to measure. Nutritional levels have actually worsened since the 1970's. INCAP's contribution to improve nutrition may have been only to prevent the situation from reaching even worse conditions.

The direct impact of the major nutrition planning efforts in the 1970's are very difficult to measure. Guatemala's National Nutrition Plan, supported by AID's Regional Nutrition Project, was successfully prepared and approved. A small team of nutrition planners continues to operate in the National Planning Commission. There is, however, a general consensus among informants that the plan and the planning unit have had little impact on nutrition activities and programs.(Grueso, 1985) These activities can be considered to be unsustained since, although the planning activities have continued, there is little evidence that these activities are producing desired benefits.

The SINAPS demonstration project, which was a primary health care delivery project with reinforced nutrition components, was not sufficiently sustained after the life of the project.(Leichtig, 1982) Its methodology and some of the training materials were incorporated into a follow-on PRINAPS project which was implemented by MOH using AID/Washington support and some technical assistance from INCAP. However, INCAP informants indicate that very little of the project was actually sustained. The pilot project was not able to become a major model for the MOH to extend its primary care services. Even in the areas where the project was implemented, MOH officials have generally failed to continue the SINAPS activities after the end of the project.(interviews)

Despite an initial reversal, there has been greater success in two of the AID supported fortification projects: the Vitamin A fortification of sugar, and corn fortification projects. The Vitamin A project supported the development, management and supervision, and evaluation of sugar fortification in the country. The project was relatively successful in increasing the levels of Vitamin A in the population in the 1970's. Nevertheless, shortly after the funding stopped and the government assumed responsibility for monitoring compliance, the

sugar companies were able to evade the regulations requiring fortification for several years.(interviews) However, under the current government, the regulations are being enforced and the benefits of the project are likely to be continuing. While this project is now being sustained, the fact that it was suspended for several years following the termination of AID funding suggests a significant vulnerability which is consistent with the lack of sustainability of the other INCAP nutrition projects.

The project which fortified corn with soya was in large part unsustained. The tortillas made with this corn were unacceptable to the population for a variety of reasons and the activities of fortification involved in the project were abandoned after the research project was terminated. Nevertheless the methodology developed to fortify the corn with soya was later adopted by the Ministry of Education and used in fortified cookies in the school lunch programs.

The demonstration project which utilized Nutricta, a high lysine corn hybrid, grew out of an INCAP research project on child development and was developed in a combined project with the Center for Improved Corn and Wheat (CIMMYT) in Mexico and the Institute for Agricultural Sciences and Technologies (ICTA). Use of this hybrid significantly improved nutrition levels on large commercial farms of the south coast and since the project terminated the corn has been promoted by (ISTA) for use throughout Guatemala.

It should be noted that the sustainability of INCAP as an institution was itself under question in the late 1970's. Sources of funding for its traditional activities in research and training were becoming scarcer and PAHO and AID required shifts in INCAP priorities as conditions for further assistance. An evaluation of INCAP that was conducted in the five member countries in the late 1970's found that four countries felt that little would be lost if INCAP had to close.

In conclusion, very few of the AID supported INCAP nutrition programs, except the modestly sustained fortification and corn demonstration projects, have had enduring activities and benefits after the project funding has ended.

4. CONTEXTUAL FACTORS

4.1 Natural Disasters

Although the earthquake occured during the implementation of sugar fortification and at the end of corn fortification projects its impact on the continuation of these projects does not appear to have been significant. Nor does the earthquake appear to have had an initiating influence on the projects implemented in 1976 and afterward.

4.2 Political

Political changes have had considerable effect on the sustainability of most of the nutrition programs in Guatemala. Nutrition is generally an issue with low political saliency. However, specific interventions, like the sugar fortification program, did have high saliency for important political actors. In addition, political changes in the early 1980's led to personnel changes within the ministry at a crucial time for the continuation of SINAPS.

Political changes, however, are clear in the fortification project. Sugar companies are major political actors in Guatemala. They appear to have been successful in the 1980's in convincing the military governments to suspend enforcement of fortification regulations. Under the current democratic government, the sugar companies may have less direct access to policy makers who are choosing to respond to other interests as well. However, it is premature to suggest that this change implies that democratic governments are more likely to sustain nutrition programs than were previous miliary governments. Military governments, after all, did provide a context which allowed the initial project to be implemented.

The SINAPS project was also affected by political changes. In many respects the project reflects characteristics which we find in other projects to be favorable to project continuation, in particular it was designed with intensive negotiation at several levels in the ministry, involving many individuals who would have been important for implementing the expansion of the pilot project. However, after the Rios Montt coup in 1982, almost all these technical officials were removed -- severely inhibiting the potential for project continuation.

In addition, there may be a nationalistic characteristic to the response of the Guatemalan government to INCAP. INCAP has been considered to be primarily a foreign-oriented research organization. This nationalistic response has reportedly caused friction between INCAP and government agencies; however, INCAP is also viewed with pride as a prestigious Guatemalan institution. This prestige and the changing orientation from research toward technical assistance is likely to have moderated the current effect of this nationalist response.

4.3 Bilateral U.S.-Guatemalan Relations

AID emphasis on applied nutrition appears to have been relatively constant since the early 1970's. Since INCAP is a regional institution, it is less likely to have been affected by the general cooling of relations between the U.S. and Guatemala

in the late 1970's. It is likely, however, that INCAP is now enjoying significant AID support because of the current U.S. interest in the whole region.

4.4 Socio-Cultural Factors

Socio-cultural context of ethnic inequality and low levels of education were not likely to have been an important barrier to acceptance of nutritional changes. The sugar fortification project did not change the taste of the sugar and therefore did not have a negative response from any particular ethnic or class group. The rejection of corn-soya based on taste, appears to have not been related to differences in food acceptability from one ethnic group to another.

Finally, there is no reason to believe that the SINAPS methodology which was applied in the ladino areas would not also be generally effective in the indian areas. Indeed, INCAP provided technical assistance for a similar project, PRINAPS, which is an current AID funded MOH pilot project in highland indian communities.

4.5 Economic

Economic changes which have brought greater commercialization of agriculture, and an increasing replacement of basic food production with greater emphasis on export production, as well as the deterioration of general economy over the 1980's, is likely to have contributed to the increases in malnutrition observed in recent years.

The effect of the severe recession in 1980's might have had an effect on the continuation of two of the projects under examination here. The suspension of sugar fortification and the end of the SINAPS project both occur during the period of recession. The sugar companies suffered a significant blow -- one major company had to close -- with the decline in the price of sugar during this period. At the time, to make up for this loss in domestic production, unfortified sugar from El Salvador was imported, undermining the effort to control the market and impose the regulation on national producers.

The end of SINAPS also coincides with the recession and the concomitant decline in MOH budgets. This budgetary restriction might explain the reluctance of the ministry to expand the pilot project into other areas.

It is not clear that the failure of nutrition planning was related to decline in the economy or in the appropriate government agency budget --the National Planning Agency. The project activities continued to be funded. They also continued to be ineffective.

4.6 Private Sector

The sugar companies are responsible for implementing the sugar fortification programs. They were initially cooperative, however, as noted above, with changes in their economic condition, their resistance at a political level led to the suspension of the enforcement of the project activities in the 1980's.

Private sector adoption of the Nutricta hybrid corn appears to have been positive contribution to continuing project benefits.

The private sector has had little contact with the national nutrition planning process.

PVOs have not been involved in these INCAP projects.

4.7 Implementing Institutions

Most of the projects examined here were implemented by either private sector organizations (sugar companies), the MOH (SINAPS) or the National Planning Commission (nutrition planning) using INCAP as a technical assistance intermediary.

As noted above, INCAP was initiated primarily as a research and training institution and the legacy of this orientation has inhibited its effectiveness in applied nutrition projects and has generated some nationalistic resistance to what is perceived as a foreign institution producing more benefits for foreigners than for Guatemalans. These characteristics, however, may be changing, as INCAP engages more in providing technical assistance.

The private sector sugar companies implemented the Vitamin A fortification. These institutions are a diverse group of relatively centralized enterprises. If we consider their diversity as constituting a fragmentation of the implementation organization, it is still unclear how this fragmentation affected continuation of the implementation of such a simple technology. Their centralization in a small but powerful association, facilitated implementation but also facilitated political opposition to the regulation.

MOH has not been particularly supportive of general nutrition projects. There are some clearly conflicting goals within the MOH. Medical doctors are not particularly interested in nutrition issues and nutrition activities are seldom perceived as an acceptable part of health responsibilities. Once a department within the Division of Maternal and Child Health (when that division was strong and the recipient of major donor support), the Department of Nutrition has been moved several

times in the MOH organizational chart. It is currently attached directly to the Director General's office and has few responsibilities.

Nevertheless, since SINAPS was a primary health care project, as such, it gained some support within the MOH. SINAPS utilized the existing MOH infrastructure in the three areas in which it was implemented. This infrastructure and the other levels of the MOH which approved and supervised the project all suffered from the same debilities that characterize the institution: centralization, fragmentation, low skill levels, and complex and conflicting goals which tend to overwhelm primary health care programs.

The SINAPS project was particularly affected by the turnover of officials that occured in the 1982 with the Rios Montt administration. Most of the officials, at both top and even the technical levels, who were involved in the project design and early implementation were removed. These changes left SINAPS without major institutional support at the end of the project.

The National Planning Commission has supported nutrition planning but the Commission itself has not been particularly effective in imposing its plans on the health sector. As a multisectoral activity, nutrition programs further suffer from the inability of the National Planning Commission to enforce multisectoral coordination among several ministries. The nutrition planning unit has had stable leadership since the origin of the unit, however, this stability appears not to have made nutrition plans any more effective as guides to implementable nutrition programs.

4.8 International Donors

PAHO support has been crucial for core activities however, this support has declined since 1979. AID support has now become the largest single funding source; however, INCAP is still able to gain multiple sources of grant funding, although at lower levels than in the 1970's. It may be likely that AID funding, coming as it does after that of other donors, has contributed to the sustainability of other INCAP activities; however, it is not clear from our cases that the sequencing of follow-on support from other donors would have an effect on the sustainability of AID projects.

4.9 National Commitment

Nutrition has generally had a low priority in government, and as noted above, was particularly marginalized in the MOH. Even a primary health care program like SINAPS would not have received significant national commitment. This factor may be crucial to the lack of sustainability of these projects.

The fact that sugar producers actively and successfully opposed the project suggests that lack of consensus had a particularly negative effect on the sustainability of the sugar fortification project.

5. PROJECT CHARACTERISTICS

5.1 Project Negotiation Process

Project negotiation using INCAP as the major counterpart with the government has tended to weaken the appearance that the projects are AID imposed. However, INCAP has also been perceived as a foreign-oriented institution, and some observers have felt that INCAP tended to impose its own views as technical experts.

Nevertheless, the negotiation process of the AID-supported INCAP projects, was, by and large, a mutually respectful one. The negotiating process for sugar projects was a carefully designed process involving INCAP promotion of the project with the President, Congress -- which approved the regulations -- and the private sugar companies. The different interests of these important actors were taken into account in the process.

The SINAPS project was well designed with ample participation by the Director and Sub-Director of Health Services, the Chief of Human Resources and the INCAP Director and project manager. It might have had more participation of higher levels in the Ministry, however.

The corn projects were an exception to this tendency. They were designed as research projects and did not involve a positive negotiating process with the government.

5.2 Institutional and Managerial Characteristics

5.2.1 Vertical vs. Integrated Projects

Generally, INCAP projects have been implemented as vertically organized projects in Guatemala. Even SINAPS, which was integrated into MOH facilities was only integrated at local and regional levels and was targeted to a limited population. The sugar fortification project, however, was well integrated into the sugar production process and the regulation was integrated into the legal structure of the country.

5.2.2 Managerial Leadership

The sugar fortification project had long term INCAP managers, general support from the same sugar companies, until the 1980's, and had MOH support from the Department of Human Resources which provided trained inspectors to enforce the regulation. It was after the end of the project that the management of sugar fortification changed.

INCAP leadership in Applied Nutrition was quite stable during the period of the Regional Nutrition Project and may have been responsible for the achievement of planning units and plans in most of the member countries.

The project management and the MOH counterparts for SINAPS was stable during most of the implementation period, however, when the Ministry officials were removed after the Rios Montt coup, the government managerial support declined significantly. It is likely that this managerial instability was a major reason for the lack of sustainability of this project.

Current INCAP leadership provides stability to the institution since it has been drawn from long term INCAP professionals. ROCAP counterparts are also long-term participants in INCAP programs.

5.2.3 Administrative Systems and Training

No formal subcomponent of AID projects, at least until the recent Child Survival projects, addressed administrative issues in nutrition projects in Guatemala. More attention to administrative systems and training might have been included in nutrition planning and in SINAPS projects with potentially more favorable results for sustainability.

5.3 Financing

5.3.1 National Absorption

Recurrent costs of nutrition planning, i.e. salaries of nutrition planners, were initially funded by AID and were absorbed by the National Planning Commission during the life of the project.

SINAPS project was designed to be implemented entirely by the existing MOH infrastructure; therefore the system put in place was not expected to need additional MOH financing after the project funds ended. INCAP was to provide technical assistance and fully fund the research aspect of the project. In some cases, this additional technical assistance is likely to have had an impact on the project which might have required

additional funding to be continued. In addition, there were small salary incentives given to the area chiefs in the three areas of the project. These incentives were not continued after the project ended. However, the participants in the project do not think that this small incentive had much effect on sustainability.

5.3.2 Foreign Exchange

There is very little foreign exchange required for most of the INCAP nutrition projects. However, the sugar fortification project required imported vitamin A supplies. During part of the period of non-enforcement, the necessary foreign exchange for its purchase was denied by the government. This constraint, however, is not believed to have been crucial. Had the sugar companies exerted their usual pressure to gain the supplies, the government probably would have made foreign exchange available.

5.3.3 Substitution Demand

The issue of substituting other project activities with nutrition projects seldom is addressed because the projects seldom gain enough support to require tradeoff choices.

5.3.4 Cost Recovery

The sugar fortification program was designed so that sugar companies could pass on the additional costs to the consumer without significantly raising the cost of sugar. (Arroyave, 1979) Companies, however, used the additional cost as an argument for suspending the regulation. (interviews)

There are no cost recovery components in any of the other INCAP programs.

5.3.5 Cost Effectiveness

While it is extremely difficult to measure the effectiveness of these nutrition projects, it is generally believed that the Vitamin A project and the corn projects provided cost effective technologies that improved the targeted nutrition conditions significantly. The nutrition planning activity, however, did not produce appreciable benefits and therefore is viewed as not cost-effective. The SINAPS project, while being implemented, was considered cost-effective as long

as the research component was not considered in the calculations. Since the benefits of research are so hard to measure, this means of calculation is probably appropriate for our analysis.

Nevertheless, many observers have their doubts about the overall benefits that have come from INCAP projects. One high level INCAP official, after presenting a review of these projects, concluded that a lot of money had gone into INCAP with very little to show for it.

5.4 Content Aspects

5.4.1 Design

Goals of nutrition planning have tended to be vague and activities not clearly defined. However, the goals and objectives and the project designs of the sugar fortification, SINAPS, and the current Regional Outreach and Child Survival projects have been well defined. The more clearly defined projects appear to have been more successfully implemented and, in the case of sugar fortification, sustained.

5.4.2 Training

Training of nutrition professionals was not supported by AID, until the recent projects which have some professional training components.

The SINAPS project did have a significant training component for the beneficiaries and did provide some training for the MOH implementing staff.

5.4.3 Personnel Incentives

Incentives that were given to personnel in SINAPS were not continued after the life of the project, however, these incentives were only fifty quetzales and were granted only to three area chiefs so their effect on project sustainability was likely to have been small.

5.4.4 Supplies and Logistics

It is not clear that any enduring impact on supplies and logistics was intended or implemented in AID supported nutrition projects.

5.4.5 Technical Assistance

Technical Assistance is the major activity of all INCAP projects. Most TA has been long-term but it may also have been periodic support brought in at different times in support of planning activities.

5.4.6 Appropriate Technology

In most cases it appears that the nutrition technology for applied nutrition projects was appropriate, however, it may be that the emphasis on nutrition planning was inappropriate since it produced plans but the plans were never implemented.

5.5 Community Participation

The SINAPS project had community participation, however, few nutrition projects have involved community participation. Even with considerable community participation, SINAPS was not sustained.

5.6 Effectiveness

The sugar fortification project and SINAPS were viewed as very effective during the period of implementation. Despite this effectiveness the Vitamin A fortification was suspended for a significant period and SINAPS was not sustained.

National planning projects did produce planning documents but were never effectively implemented.

It appears that, even if effective, nutrition projects may not be sustained.

6. SUMMARY

Nutrition projects that were implemented through INCAP, like family planning projects, seem particularly vulnerable. The INCAP nutrition projects were not particularly visible to beneficiaries and therefore did not generate the demand for services that water and curative services have gained. They have not gained significant levels of national commitment and, when attacked by significant political actors, or when government changes bring significant changes in MOH personnel involved in the projects, they can be severely curtailed. The impact of these contextual factors seems particularly crucial

and has prevented the continuation of projects which have had other characteristics that are conducive to sustainability in other projects: such as, effectiveness, national absorption of costs, good implementing organization, etc.

INCAP nutrition projects, however, have also been characterized by several controllable factors which may have contributed to their failure and could be changed in future projects. Projects tended to be vertically organized and not well integrated into the institutional life of the health sector. Several projects did not have clearly defined goals. The possible lack of appropriateness of the technology in the case of nutrition planning may also have contributed to the lack of sustainability.

It should be noted that some of the current projects have taken these factors into account and have modified projects in ways that may contribute to future sustainability.

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ANNEX G: ECONOMIC ANALYSIS AND SUSTAINABILITY

1. INTRODUCTION

This annex extends and amplifies the consideration of economic factors which appears in the main body of this report and in the individual case studies. This review and analysis also pinpoints some of the difficulties encountered by the project team in applying particular definitions or concepts to their studies or areas, and highlights several methodological advances that have taken place since the previous study in Honduras.

These insights and experiences should be translated into further refinement of these factors, and future sustainability studies will have a much firmer methodological base on which to rest. The second major purpose of this appendix is therefore to provide some guidelines as to how future studies might take best advantage of this kind of information. These guidelines consider not just the nature and timing of activities of the investigating team, but the realistic problems concerning data availability and reliability, problems which increase with the length of the period of time under investigation. The present study analyzes projects that were initiated as much as 45 years ago, before the end of World War II, suggesting the possibility of substantial data quality and consistency problems.

Nominally, the MOH is responsible for providing health care services to the entire Guatemalan population. In practice, other agencies (IGSS in particular) serve certain segments of the population. The selection criteria for being eligible to receive health care treatment from these other groups are such that the residual (about 70 percent) population relying on MOH exclusively have lower employment rates, less education and income, and lower access to potable water and sanitation facilities. Predictably, they have proportionately greater health care needs and less ability to pay for the services they receive. The effects of changing economic conditions on MOH clientele are pronounced and they similarly affect the service delivery system that is needed.

Economic conditions are important design and evaluation constraints at both the beginning and end of projects. The structural characteristics as well as the state of the economy are factors to be considered in project design and evaluation, and it is important to have good descriptions of these factors to support the design and evaluation processes. In the final analysis, however, economics is a behavioral science, and its value lies in being able to predict the responses of individuals and groups to these conditions and characteristics.

The next section provides a general overview of the evolution and performance of the Guatemalan economy over the last four decades, and identifies key events and periods that warrant special attention in project reviews. As will be seen, AID policies and programs have been instrumental throughout this process, and Mission involvement has extended well beyond the health field, into both the education and agricultural development fields. Section 3 lists some of the economic environment hypotheses considered in this study and applies them to the specific program areas and projects examined in Guatemala. The concluding section considers the implications of these findings for future assistance programs in Central America and elsewhere, identifying actions that can be taken to improve the quality and integration of economic analysis into retrospective project performance evaluations.

2. OVERVIEW OF THE GUATEMALAN ECONOMY

Excluding bilateral assistance from the United States and others, MOH funding comes from budget allocations from the central government (85 percent), loans -- primarily for construction (13 percent), and user fees (2 percent) (World Bank: July 1986). The Ministry exercises relatively little control over these sources, so that its level of funding is heavily dependent on the performance of the domestic economy.

Agriculture historically has dominated the Guatemalan economy, today directly producing more than one-fourth of domestic output annually. AID and predecessor agency activities over the same time period (1942-1987) have also had a great bearing on the present composition, characteristics, and capabilities of the economy. Various projects have promoted export crop diversification, introduction of new agricultural technologies, re-settlement of landless farmers on public lands or properties acquired by a variety of means (some of them indisputably questionable), and support of required infrastructure modifications, particularly expansion and improvement of the road network.

A multi-lateral program to eradicate malaria was also supported intermittently from 1958 to 1970. This project helped open large areas of fertile land to cultivation and further magnified the significance of the agricultural sector to the overall economy. AID attention shifted to the rural areas in the 1970s, with programs emphasizing small-scale agriculture and the development of cooperatives. A $23 million loan helped revamp the entire public agricultural sector, fortifying the Ministry of Agriculture and streamlining small farmer access to credit.

Primary export products include coffee, cotton, sugar, meat, cardamom, and bananas. The United States and the Central American Common Market, with 35 and 20 percent respectively, account for the majority of export sales. Basic imports include

fuels and lubricants, industrial equipment, motor vehicles, and raw materials such as iron and steel. The United States accounts for 37 percent of this trade directly. Until very recently, the Guatemalan quetzal was strengthened by this significant market relationship with the United States and traded at par with the dollar.

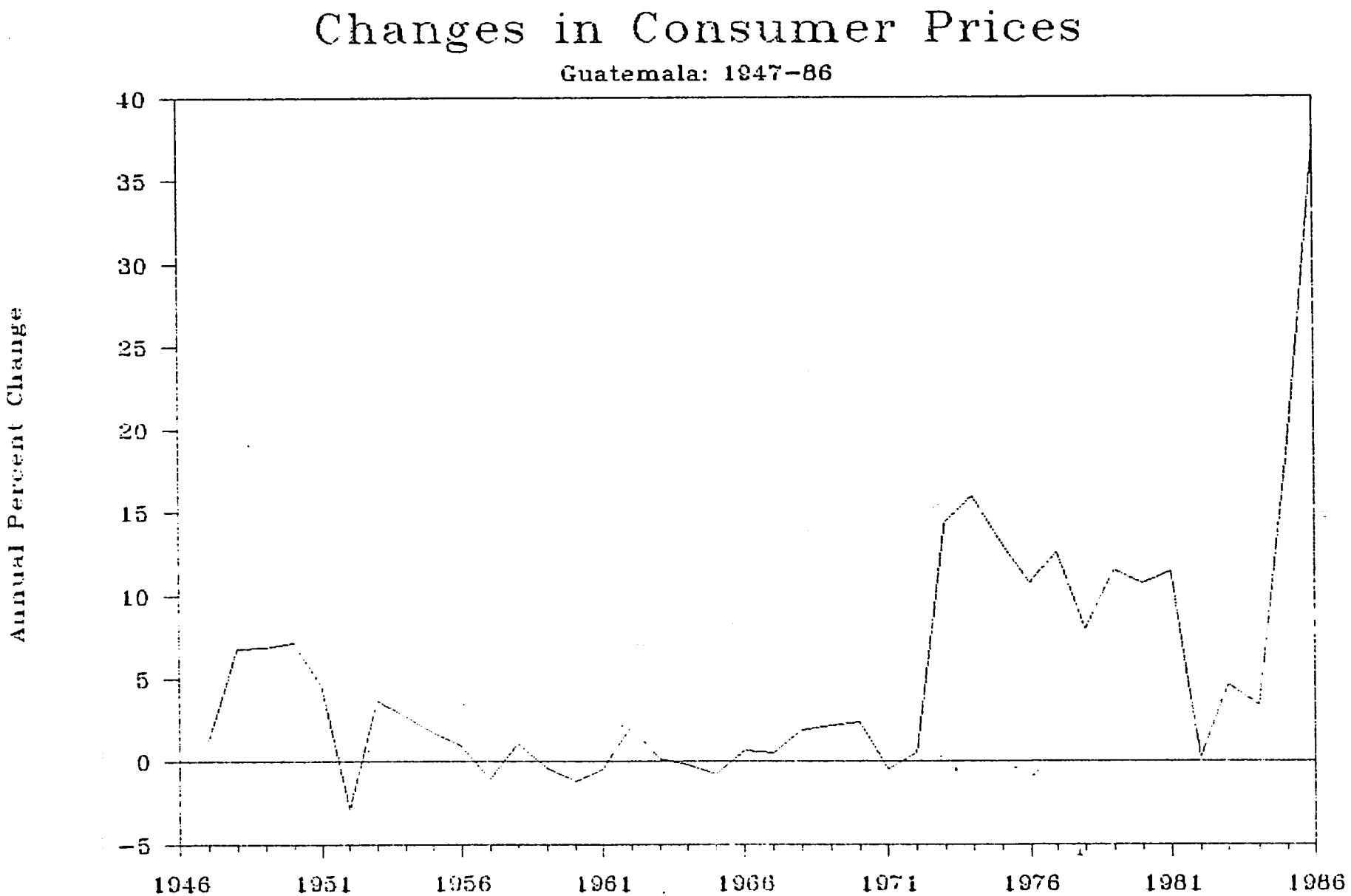
Inflation has only emerged as a serious problem in the last few years, with annual increases in the CPI soaring from virtually zero to about 37 percent between 1982 and 1986. (Figure 1.) In 1972, some two decades of stable prices were disrupted by a variety of factors, including the deteriorating performance of the closely associated American economy, emerging difficulties in the Central American Common Market, and the institution of a number of government reforms and initiatives that were actually expected to have these inflationary effects for a period of time. These produced a decade of sustained annual price increases in the vicinity of 10 percent. Severe austerity measures in public spending were enacted in 1982, resulting in sharp cutbacks in public spending in 1982, 1983, and again in 1985. Figure 2 shows how this reversed an apparent trend in the years immediately before these restrictions towards greater public health expenditures.
(Much of this increase, however, was due to a wave of construction activity and may have produced little real increase in service levels.) While these austerity measures produced an immediate salutary effect, they were clearly not enough to keep the genie in the bottle, and the 1983 devaluation of the quetzal added further pressures to already escalating price levels.

[INSERT FIGURES 1 AND 2 FOR ANNEX G]

In aggregate terms, the Guatemalan economy grew briskly (if erratically) from 1950 until 1978, when a sharp and sustained downturn began that still severely affects the welfare prospects of this country. (Figure 3.) This growth resulted from increased agricultural output, in great measure a product of the malaria eradication program opening large amounts of fertile land to cultivation, and from a program of economic diversification emphasizing industrial development, also benefiting greatly from AID financial and technical participation. Real aggregate growth for 1977 was only exceeded in three previous years since 1950. The region-wide downturn produced by the Banana Strike of 1954 was followed by a dramatic surge in investor confidence and external assistance after the military coup rolled back social reforms that had taken place in preceding years, producing a real growth of more than 9 percent in 1956.

[INSERT FIGURE 3, ANNEX G]

FIGURE 1



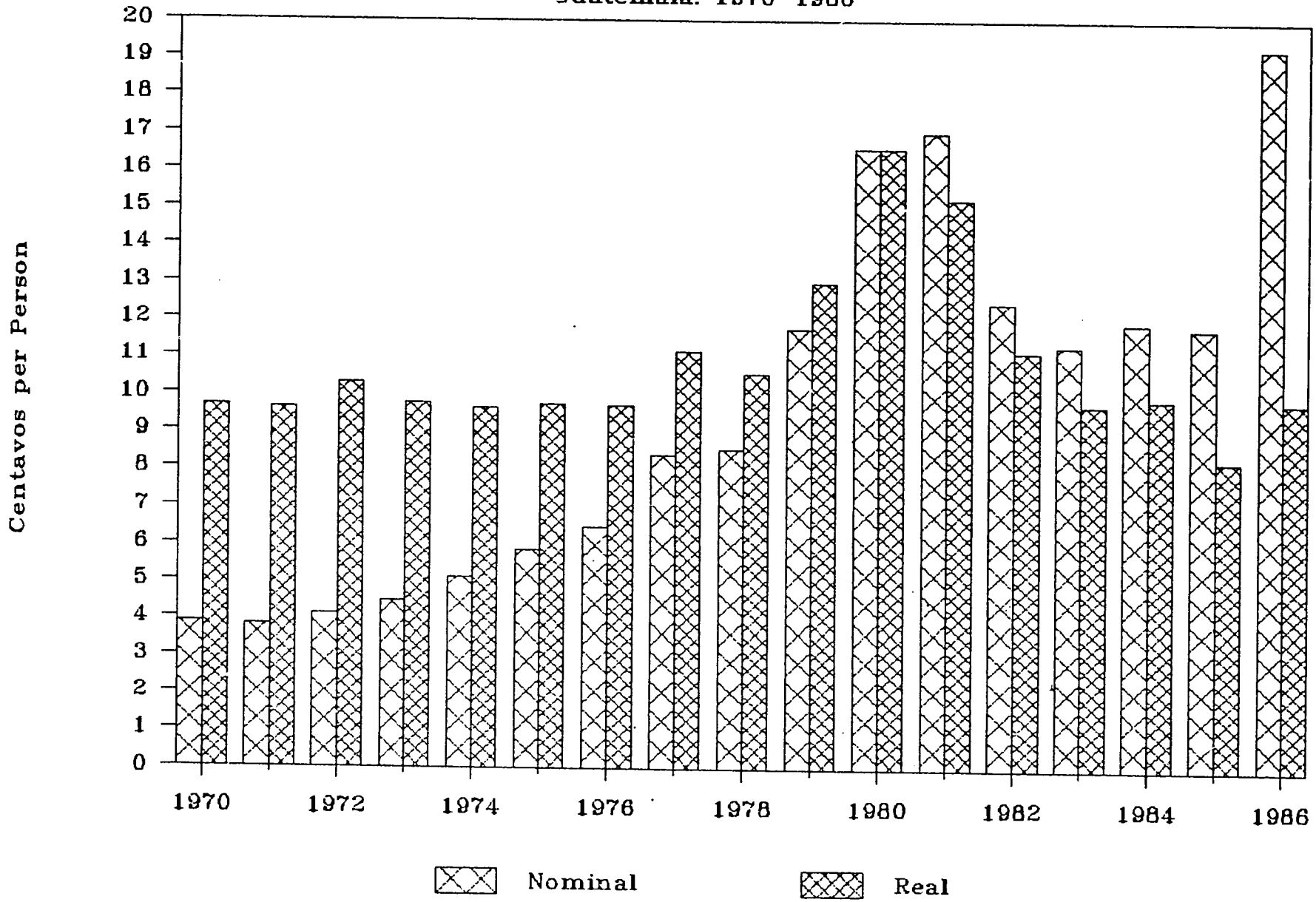
Source: National Statistics Institute

1690

FIGURE 2

MSPyAS Spending per Capita

Guatemala: 1970–1986



During the 1960s participation in the Central American Common Market brought substantial benefits to the domestic economy, and these carried over into the early 1970s. Although evidence suggestive of structural weakness emerged in 1973-75, the wave of international assistance following the devastating 1976 earthquake seems to have bought a reprieve from the impending recession for about two years. The fact that the bottom fell out of the Guatemalan economy in the early 1980s is not news -- the same thing was happening throughout the world. But the Guatemalan recession has lingered, despite surprisingly strong showings over the preceding 30 years -- real economic growth averaged 3.8 percent annually during the 1950s, 5.5 percent in the 1960s, and even improved to 5.7 percent in the 1970s despite the serious problems encountered late in the decade.

One of the major obstacles to restoring economic prosperity is sub-utilization of human resources due to the composition and characteristics of the labor force. Fully two-thirds of the economically active population has had three years or less of formal education, greatly restricting the job opportunities open to them. Mechanization has reduced demand for labor in thetraditionally dominant agricultural sector, and the rural population in particular -- comprising some 63 percent of the total, poorer, less educated, and more isolated -- is ill-situated and ill-prepared to undertake other kinds of productive activities. The indigenous population is in comparatively worse shape than rural ladinos.

Unemployment and underemployment rates are closely related to private investment levels and world market prices for primary Guatemalan export products. Capital flight beginning early in the decade and export reductions helped produce a combined under- and unemployment rate in the vicinity of 45 percent of the labor force, and these factors are only now beginning to turn around somewhat.

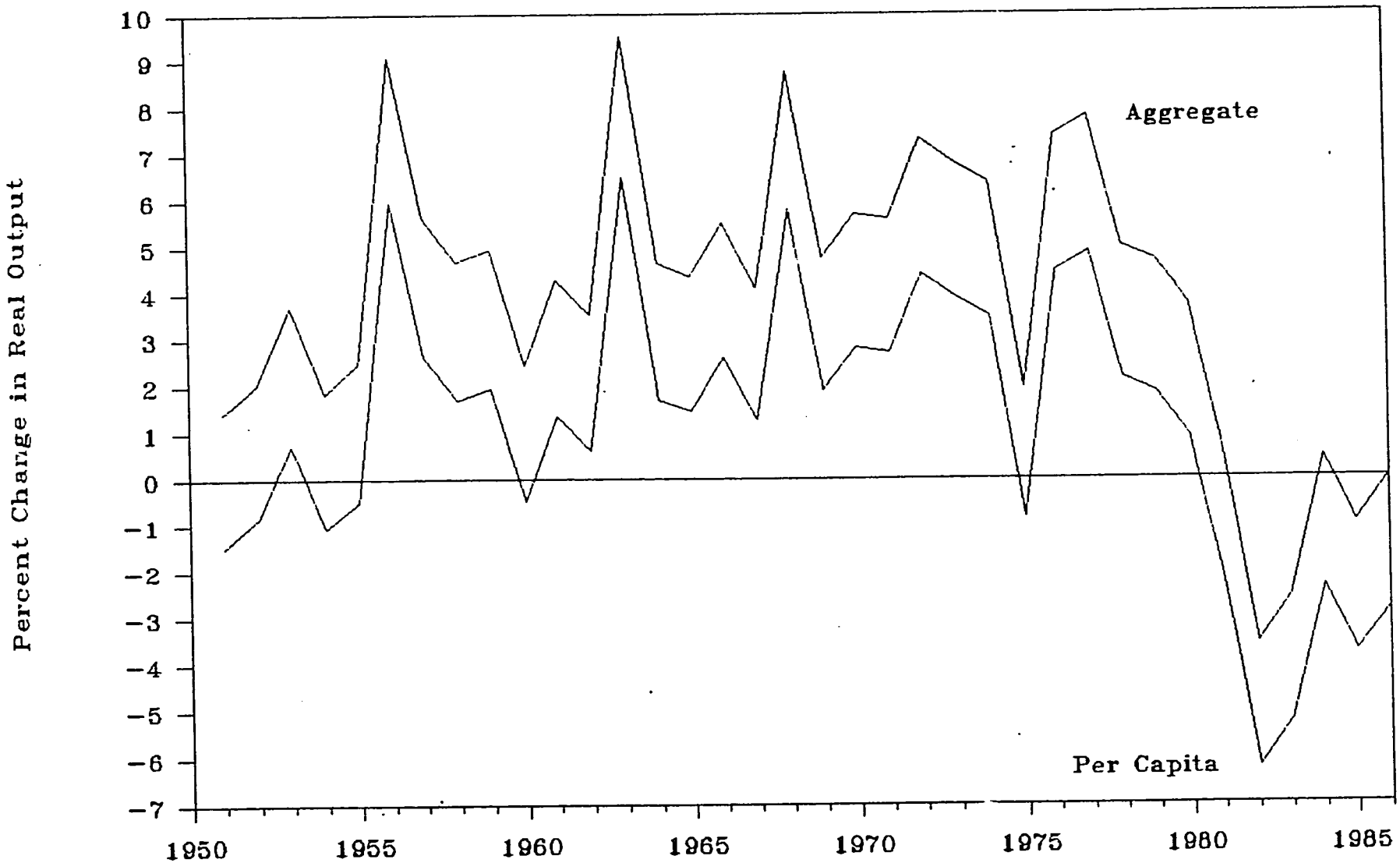
Figure 3 also suggests that the economy is volatile (a common feature of agriculturally based economies) and that per capita gains are not quite so pronounced. Figure 4, however, paints quite a different picture. From its low point in 1955, real output per capita steadily increased through 1980 when it was 90 percent higher, despite a population that more than doubled in size, to almost 7 million persons. That is to say, the potential standard of living had almost doubled for more than twice the number of people. Of course, these gains were not shared equally: today, the richest 20 percent of the population receives more than 54 percent of the income, the poorest 20 percent less than one-tenth of that. Things definitely appeared to be on the upswing for Guatemala, but this rapidly turned about. Within six years, real output per capita had lost more than one-fifth of its value, and there were over a million more mouths to feed.

[INSERT FIGURE 4, ANNEX G]

FIGURE 3

Real Economic Growth Rates

Guatemala: 1950–86

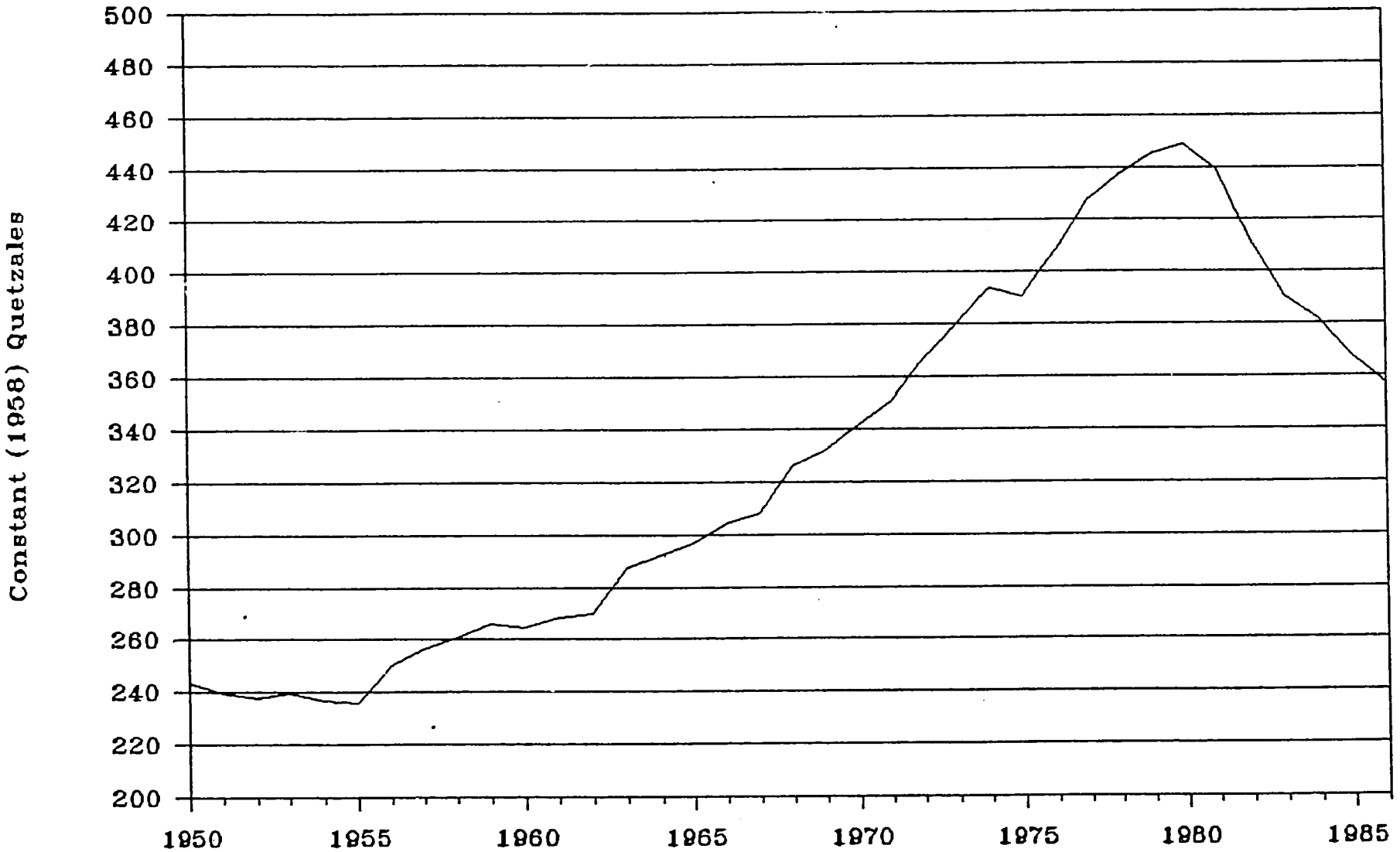


Source: National Statistics Institute

FIGURE 4

Real Economic Output per Capita

Guatemala: 1950–86



Source: National Statistics Institute

From an economic perspective, Figure 4 essentially defines the "budget constraint" for the Guatemalan society since 1950. The way in which these resources have been divided between the private and public sectors and, within the public sector, between health and other programs, is an indication of the relative priorities that have been given to these areas over time. These are the two basic elements underlying the set of economic hypotheses concerning sustainability of projects that have been developed in this study. Figures 5 and 6 provide an indication of these relative priorities, a point addressed further below. Figure 7 reflects the annual changes in relative priority for the Ministry of Health.

[INSERT FIGURES 5, 6, 7, FROM ANNEX G]

Bleak economic conditions greatly trouble public health care planners in Guatemala, and apparently with reason given the historically low profile of the public sector in this country. Many macroeconomists view the relatively small size of the public sector as a positive factor in promoting recovery: the MOH receives just about one percent of GNP annually, an uncommonly low figure. Surprisingly, real growth rates in total public spending and health care both far outstripped economic advances during the peak growth decade of the 1970s, averaging 9.4 percent and 9.1 percent, respectively. (Figure 6.) However, the decline in real growth from 1980 on disproportionately affected the public sector. The economy fell an average of one percent annually. Total public spending declined somewhat less (-0.6 percent), but the MOH experienced a real decline in its purchasing power of more than 4.6 percent. When the exceptional post-election, post-devaluation figures for 1986 are omitted, the GOG dropped an average 6.5 percent and the MOH 10 percent from 1980 to 1985. Cerezo acted rapidly following his election to offset these declines,and many doubt the ability of the economy and willingness of the oligarchy to absorb his proposals for public sector development.

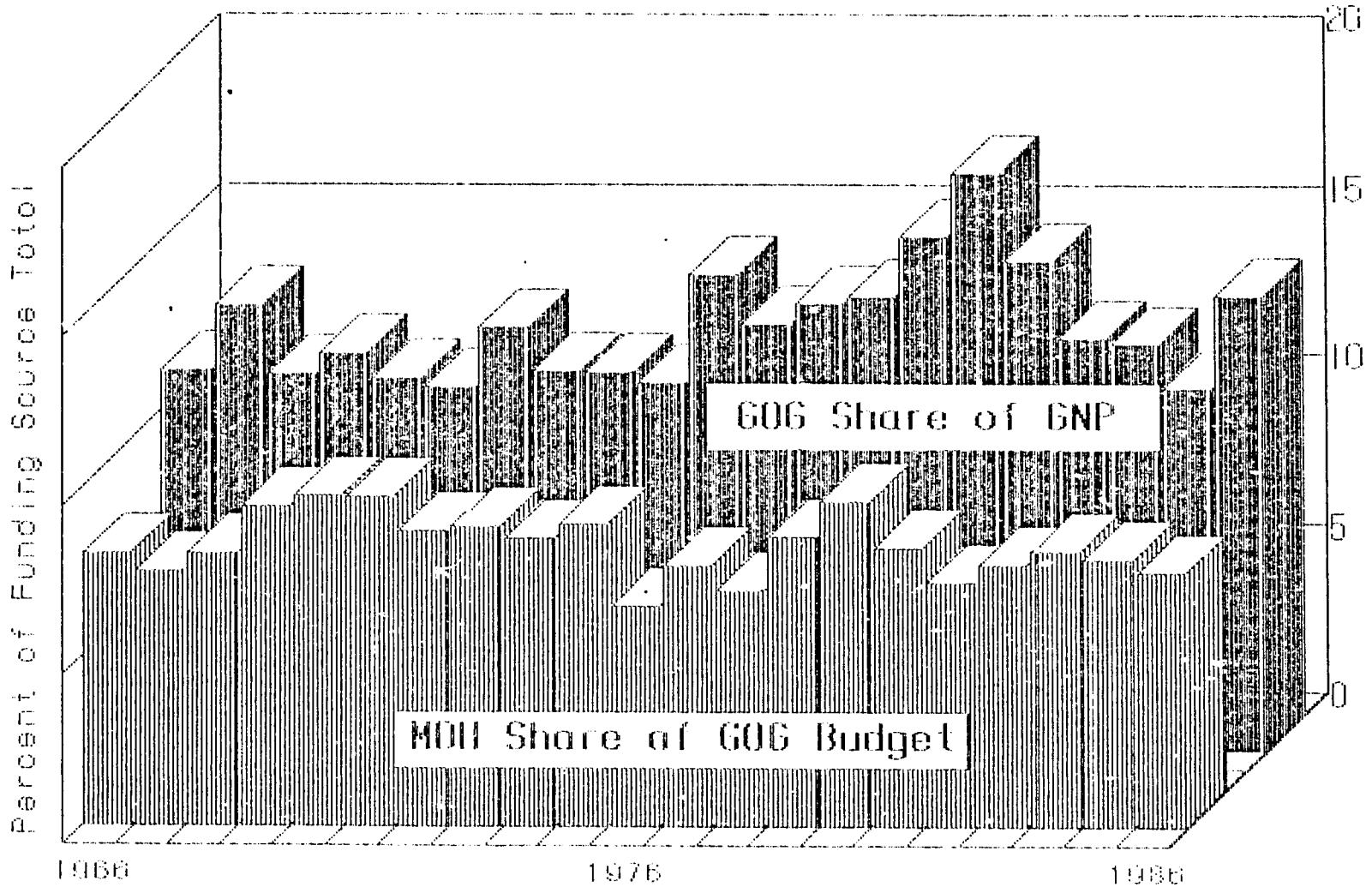
These data demonstrate that public health care financing in Guatemala is particularly sensitive to fluctuations in economic conditions. From 1966 to 1986, the Ministry of Health was responsible for an average 8.3 percent of total public spending annually -- not out of line for the Central American Region. But total public spending was just 12.5 percent of GNP -- well below the norm. (Figure 8.) Together, these figures imply that just over one percent of gross national product was used by the Ministry. Factoring in the efforts and expenditures of other public and private institutions, a mere 1.7 to 1.8 percent of gross national product goes to improving health care conditions in Guatemala annually, despite abysmal conditions in many areas that are easily avoided or contained with existing, low-cost technologies and techniques.

[INSERT FIGURE 8, ANNEX G]

FIGURE 5

Relative Priorities of Public Programs:

All Government Spending and Spending by the Ministry of Health



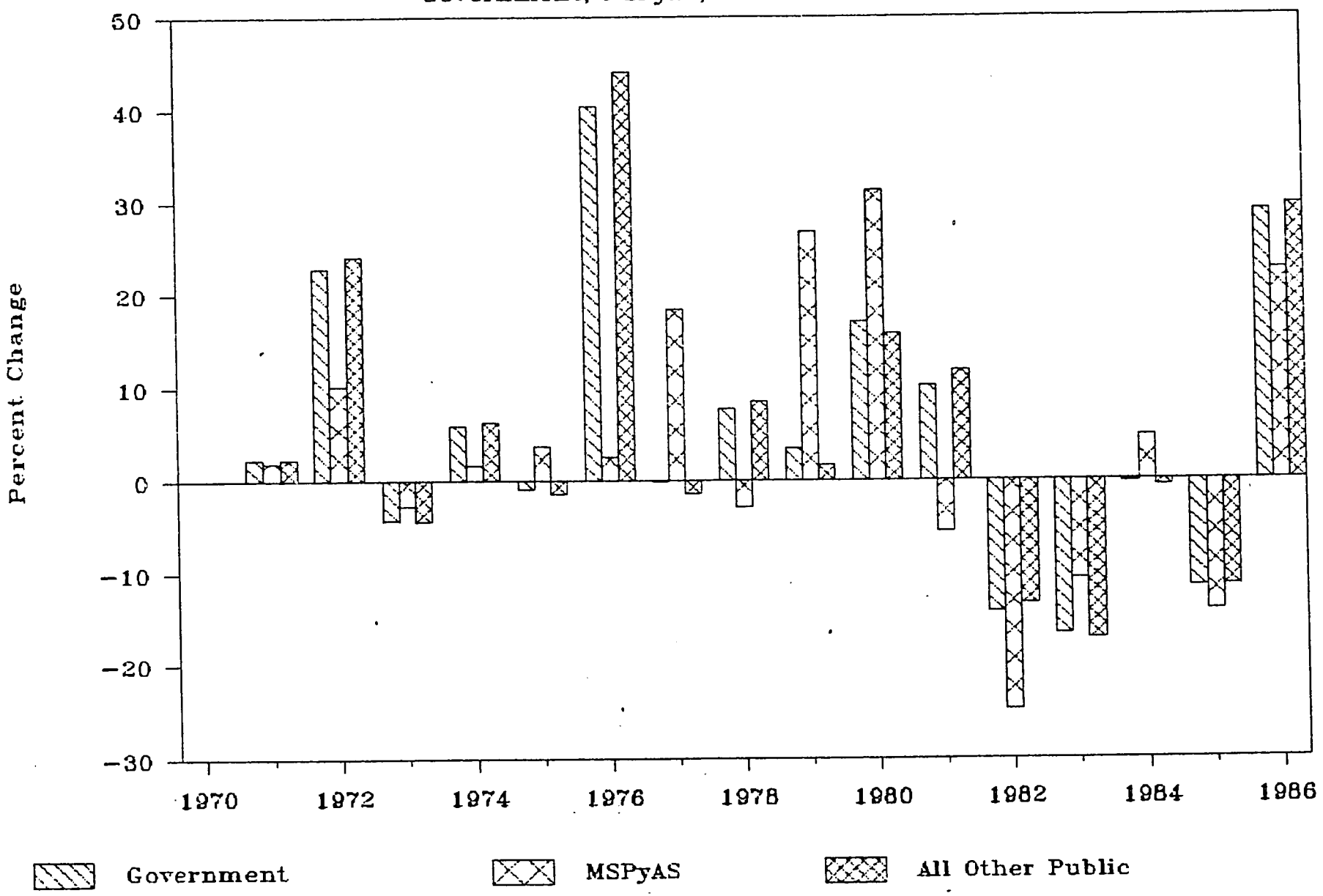
Source: Ministry of Public Finance

171a

FIGURE 6

Real Spending Growth: 1971–1986

Government, MSPyAS, & All Other Public



Source: Goverment of Guatemala
Budget Documents
1970 - 1986

FIGURE 7

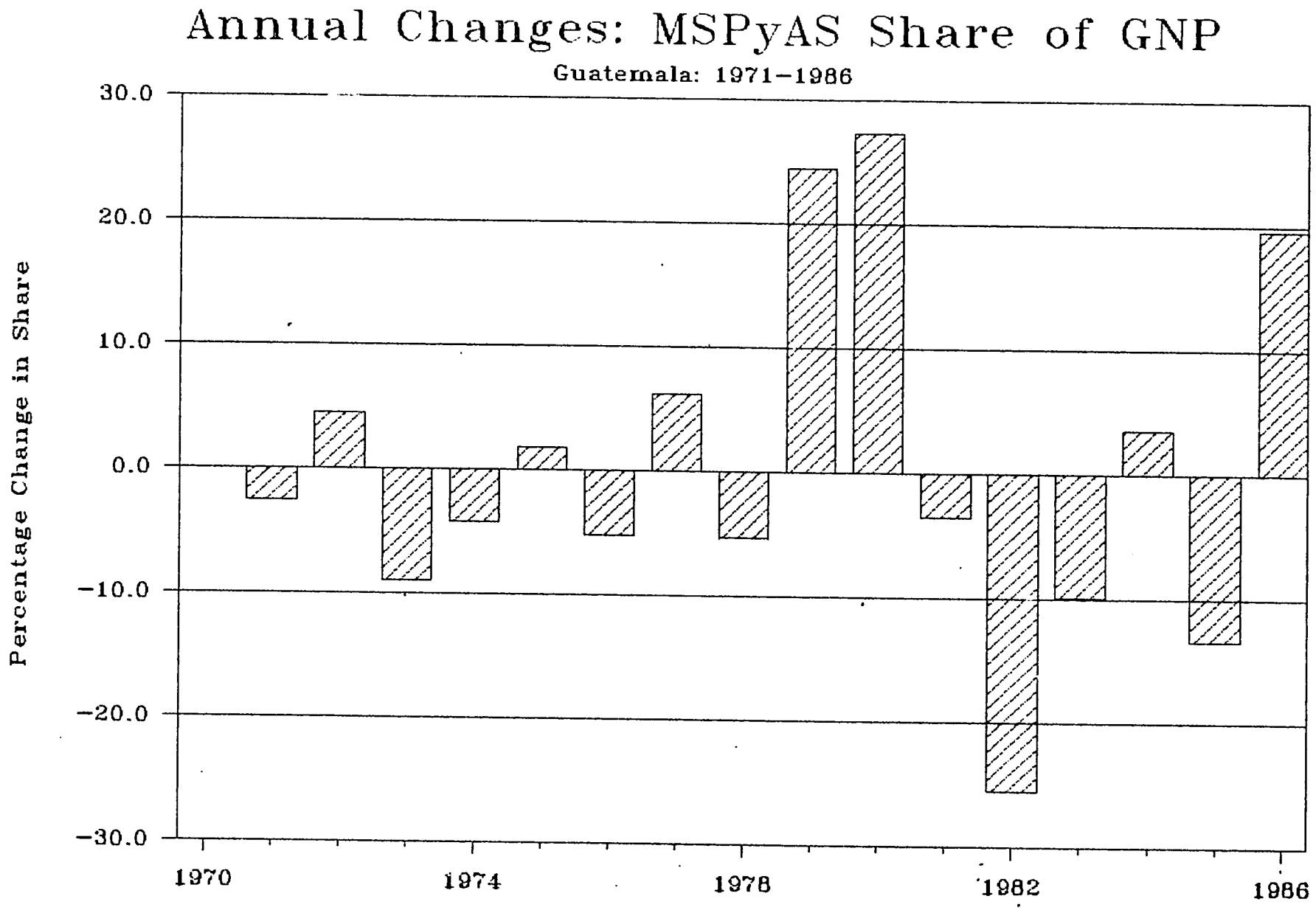
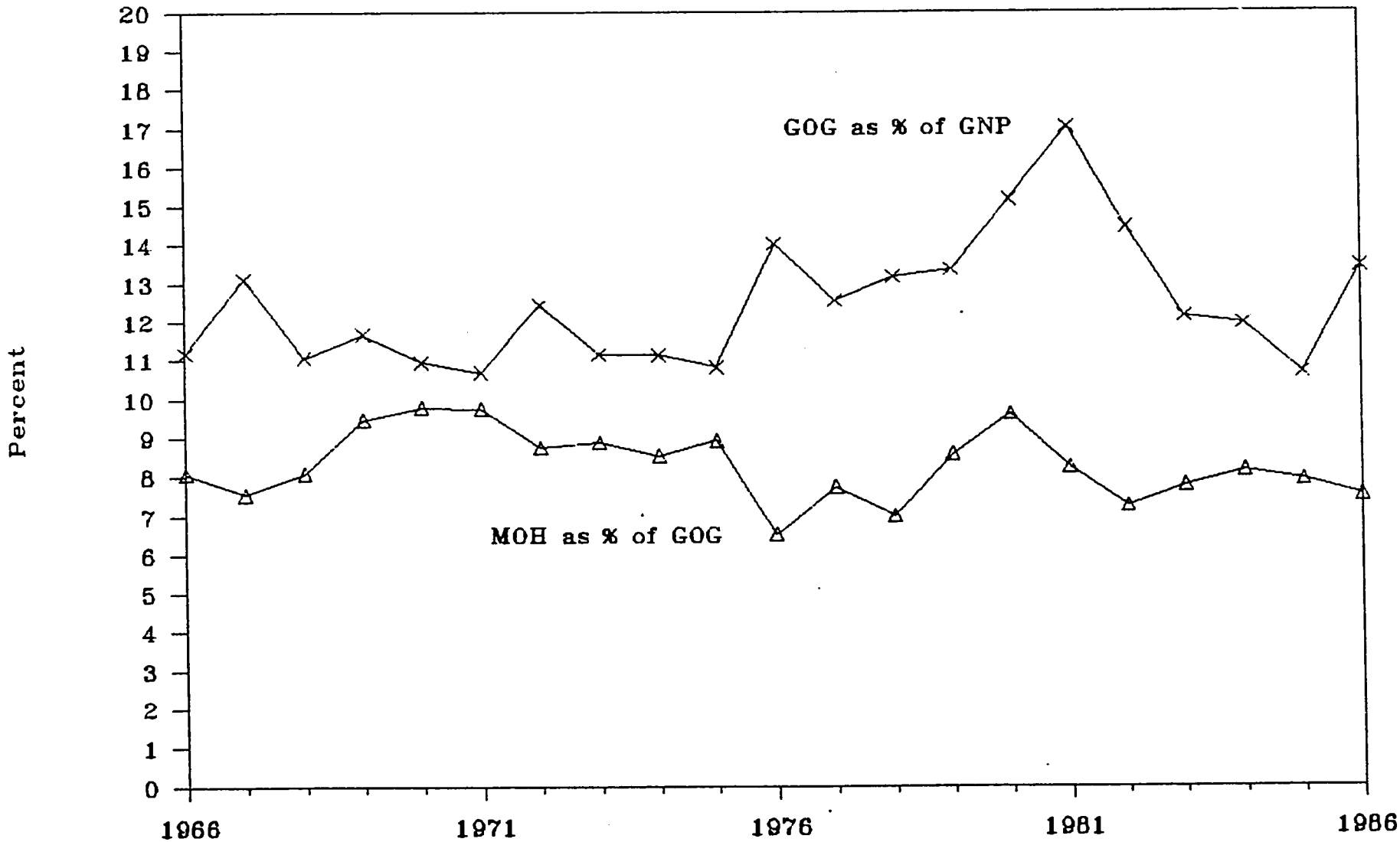

Annual Changes: MSPyAS Share of GNP
Guatemala: 1971–1986
Percentage Change in Share
30.0
20.0
10.0
0.0
−10.0
−20.0
−30.0
1970
1974
1978
1982
1986

FIGURE 8

Actual Expenditure Shares: GOG and MOH

(Relative to Source of Funding)



Source: Ministry of Public Finance

Real expenditure data from 1966-86 show no systematic changes between total public and MOH spending priorities when they are represented in percentage form as in Figure 8. Only significant and unpredictable events, such as the earthquake of 1976 and the election of a Christian Democrat in 1985, produced more than token increases in public spending relative to economic output. In the case of the earthquake, the public sector was unable to sustain its relative gain in following years. The apparent increase in "priority" for the public sector centered around 1981 is illusory, the result of decreased spending in both the public and private sectors. To see this, compare these trends with those of Figure 6. In reality, public spending dropped some 16 percent, while private spending fell just six percent. Because of the much larger spending base of the private sector this creates the illusion of changed priorities when "share" figures are being considered.

However, because of the much larger spending base it began with and because of incremental budgeting procedures, the one-sided growth gain experienced by other (non-health) public programs in 1976 may well have produced an effective shift in priority away from public health care programs also visible in Figure 6. The Ministry regained ground through 1980, but has fallen off relative to other public programs since then.

This period also coincides with a rapid escalation in external loans to the health sector (Figure 9), and with the infusion of more than $160 million in Economic Support Funds by the United States. Table 1 summarizes the status of outstanding health sector loans by source through August 1987. As expected, IDB (Inter-American development Bank) loans dominated the scene, accounting for more than 80 percent of the face value of these loans exceeding $250 million. What is most striking about these figures is the estimated average cost of a dollar through these various loans, reported in the final column. These calculations were based on several simplifying assumptions:

- that the market interest rate was 10 percent for all these loans, independent of when they were contracted (variations in the assumed constant 10 percent market discount rate would not materially affect these findings);

- that net obligations (original contracted amount less subsequent deobligations) were disbursed immediately;

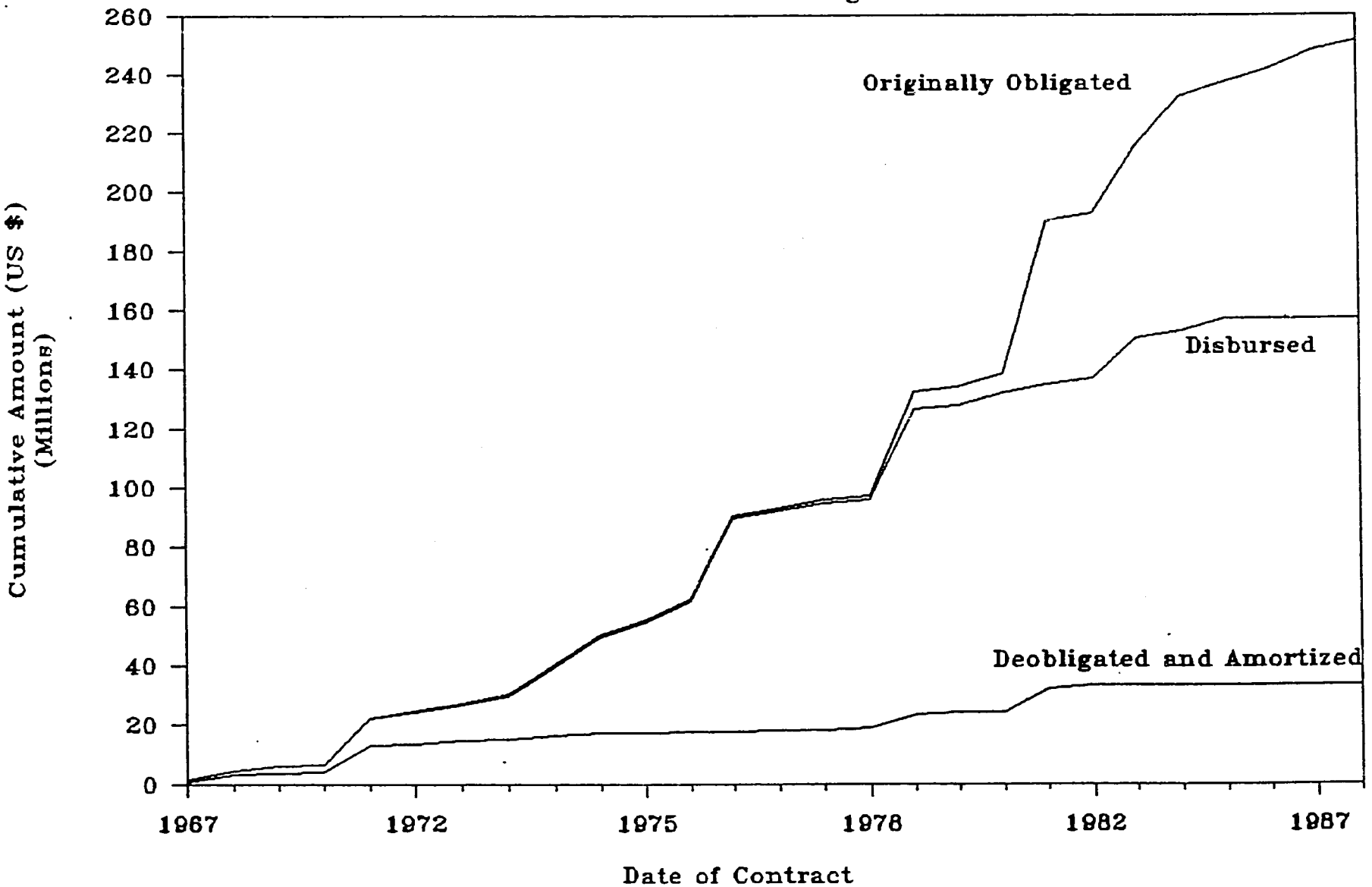
- that payments during the grace period were restricted to interest on the disbursed amount; and

- that payments following the grace period were uniform, based on the original principal, interest rate, and remaining term of the loan.

FIGURE 9

Guatemalan Health Sector Loans

Status of Active Loans: August 1987



Source: Ministry of External Finance

In several ways, this set of assumptions actually overestimates the net present value of repayments by GOG. Nevertheless, these calculations suggest that the GOG, on average, will pay just 31 percent of the face value of the loans it has received. Surprisingly, IDB gave the best deal, providing dollars at a quarter of their value, but AID offered an impressive bargain as well, providing $3 for future payments that would be worth $1 today. Only Canada (BCIE) required anything near a market return, and they provided just more than 1 percent of the loan funds represented here.

[INSERT FIGURE 9, ANNEX G]

These developments have generated considerable concern about the ability of the GOG to finance the recurring costs of programs being funded by these loans and grants, concern that well-intentioned programs and plans are effectively creating a nation of "foreign assistance junkies" requiring a long and difficult process of reducing dependency on major suppliers. This situation is not unique to Guatemala, it should be added. Ironically, the suspension of U.S. foreign assistance to Guatemala because of persistent human rights abuses may have diminished the seriousness of this dependency problem in comparison to other Central American countries.

In summary, Table 1 illustrates the seductiveness of foreign assistance loans from a variety of sources. The calculations underlying this table arbitrarily assume a real discount rate of 10 percent and that loan funds are acquired and committed immediately, so that host country interest payments during the "grace period" are maximized. Even so, at a 10 percent real discount rate, the terms of the many agreements reflected in this table imply that Guatemala pays 31 cents for each dollar it receives in loans. On the surface, it would be foolish to reject these loans, but other factors intervene to complicate the evaluation, particularly the recurring costs associated with particular efforts that are supported by these loans. Facilities construction projects generate considerable recurring costs. Encouragingly, IDB and MOH recently reformulated a major construction project so that, while still focusing on facilities, the recurring costs were cut more than half.

[INSERT TABLE 1, ANNEX G]

Many recently completed IDB-backed facilities have not yet opened their doors because of the lack of equipment and personnel to staff them. In spite of this, the 1987 MOH Action Plan lists projects that will add another seven hospitals, seven new or expanded centers, several clinics, and more than 130 health posts. Other loans, grants, and national funds are targeted at equipment acquisitions, but the ability of the MOH to absorb the recurring costs of these facilities is doubtful, given its failure to adequately staff, equip, and supply existing facilities.

TABLE I

GUATEMALAN HEALTH SECTOR LOANS OUTSTANDING
Status as of August 13, 1987

Source	Purpose/Description	Amount Originally Contracted	Net Amount Obligated	Percent Util-ized	Percent Amor-tized	Interest Rates: Grace Period	Interest Rates: Remaining Term	Grace Period (Years)	Total Period (Years)	NPV of Repayments @ 10%	Implied Cost of a Dollar
USAID:											
AID-520-L-011	ERRADICACION DE LA MALARIA I	1,550,000	1,550,000	100.0	32.8	1.00	2.50	10	40	364,394	0.24
AID-520-L-011-A	ERRADICACION DE LA MALARIA II	630,000	630,000	100.0	32.8	1.00	2.50	10	40	148,108	0.24
AID-520-L-020	SALUD PUBLICA RURAL I	2,500,000	2,339,243	100.0	12.0	2.00	3.00	10	40	721,235	0.31
AID-520-L-021	SALUD PUBLICA RURAL II	3,400,000	3,079,605	100.0	6.3	2.00	3.00	10	40	949,504	0.31
AID-520-U-033	SIST.COMUNITARIOS INTEGRADO SALUD NUTRICION	5,000,000	5,000,000	77.1	0.0	2.00	3.00	10	25	1,342,673	0.37
AID-520-U-033-A	SISTEMAS COMUNITARIOS INTEGRADOS SALUD Y NUTRICION	4,500,000	4,500,000	0.0	0.0	2.00	3.00	10	25	1,658,406	0.37
	Subtotals:	$17,580,000	$17,098,848							$5,684,320	0.33
BCIE:											
BCIE-160	III ETAPA PROYECTO EMERGENCIA ABAST. DE AGUA	1,500,000	1,500,000	100.0	58.3	8.75	8.75	2	8	1,422,395	0.95
BCIE-86-FCIE	INTRODUCCION AGUA POTABLE (AMP)	1,200,000	1,200,000	100.0	81.9	8.75	8.75	2	10	1,129,286	0.94
	Subtotals:	$2,700,000	$2,700,000							$2,551,681	0.95
BID:											
BID-100/TF-GU	ACUEDUCTOS URBANOS EN LOS MUNICIPIOS-INFOM	3,020,000	3,020,000	100.0	78.6	2.75	2.75	1	25	1,493,091	0.49
BID-113/SF-GU	ACUEDUCTOS RURALES	1,300,000	1,300,000	100.0	63.0	2.25	2.25	4	30	509,361	0.39
BID-243/SF-GU	INTRODUCCION DE AGUA POTABLE	15,500,000	15,500,000	100.0	59.5	3.25	3.25	5	25	7,545,139	0.49
BID-319/SF-GU	ACUEDUCTOS RURALES II.	2,600,000	2,330,000	100.0	42.3	2.25	2.25	4	30	912,932	0.39
BID-353/SF-GU	ALCANTARILLADOS CIUDAD GUATEMALA	10,000,000	9,977,200	100.0	11.7	0.25	1.25	10	40	1,610,217	0.16
BID-398/SF-GU	ACUEDUCTOS URBANOS	5,000,000	5,000,000	100.0	5.0	1.00	2.00	10	40	1,118,625	0.22
BID-423/SF-GU	ACUEDUCTO XAYA PIXCAYA	10,000,000	10,000,000	100.0	6.7	1.00	2.00	10	40	2,237,251	0.22
BID-446/SF-GU	ACUEDUCTOS RURALES III	7,000,000	7,000,000	100.0	3.4	1.00	2.00	10	40	1,566,076	0.22
BID-468/SF-GU	MEJORAMIENTO DE LA SALUD RURAL	28,000,000	28,000,000	100.0	0.0	1.00	2.00	10	40	6,264,302	0.22
BID-540/SF-GU	PROYECTO AGUA POTABLE EN CIUDAD GUATEMALA	35,500,000	31,113,899	98.5	0.0	1.00	2.00	10	40	6,960,960	0.22
BID-623/SF-GU	MEJORAM. SERV. RURALES DE SALUD	51,000,000	43,000,000	6.9	0.2	1.00	2.00	10	40	9,620,179	0.22
BID-671/SF-GU	ACUEDUCTOS ALCANTARILLADOS CIUD. SECUNDARIAS	22,500,000	22,500,000	59.9	0.0	1.00	2.00	10	30	5,899,123	0.26
BID-719/SF-GU	ACUEDUCTOS RURALES IV. ETAPA	16,800,000	16,800,000	14.7	0.0	1.00	2.00	10	40	3,758,581	0.22
	Subtotals:	$208,220,000	$195,541,099							$49,495,837	0.25
OTHERS:											
ACDI-2-GU	CONSTRUCCION ACUEDUCTOS RURALES	2,538,200	2,538,200	100.0	0.0	0.00	0.00	10	50	239,241	0.09
AP.CREDITO-1	EQUIPOS MEDICOS HOSPITAL ROOSEVELT	2,985,464	2,985,464	0.0	0.0	8.45	8.75	0	10	2,827,047	0.95
AP.CREDITO-2	EQUIPOS MEDICOS HOSPITAL QUEZALTENANGO	6,690,430	6,690,430	0.0	0.0	8.45	8.75	0	10	6,335,417	0.95
BCO UNION EUROPE	HOSPITAL CIRUGIA TORAXICA-CARDIOVASCULAR	2,884,005	2,884,005	82.4	41.2	7.75	7.75	1	7	2,654,534	0.92
KREDITANSTALT	CONSTRUCCION HOSPITAL SN. MARCOS	2,584,200	2,222,412	100.0	0.0	2.00	2.00	10	30	719,237	0.32
ZENTRALPARKASSE	PROYECTO I FASE-II ETAPA XAYA PIXCAYA	4,895,715	4,895,715	85.9	0.0	3.00	3.00	2	12	3,169,392	0.65
	Subtotals:	$22,578,014	$22,216,226							$15,944,866	0.72
	GRAND TOTALS:	$251,078,014	$237,556,173							$73,676,705	0.31

Source: Ministry of External Finance

In the case of Economic Support Funds, these are increasingly being seen to be a direct substitute for counterpart funds that would otherwise be lacking, although their primary motivation was and remains the alleviation of balance of payments problems. Apparently, no health sector projects have yet relied on this funding source, but there is increasing pressure to do so. In that event, the national cost-absorption factor would have to be seriously reconsidered as an indicator of the sustainability of a project.

Overall U.S. bilateral assistance to Guatemala increased almost seven-fold between 1984 and 1985, from just under $16 million to over $101 million. Initially, direct development assistance increases led the way, but ESF and PL-480 Title I funds have since assumed the leading roles. From 1985 to 1987 funding in these categories will have increased from less than one-third to almost 70 percent of the total, and that total itself will have risen some 30 percent to $132 million. This analysis is based on preliminary data provided by USAID/Guatemala, current through March 1987.

3. SUSTAINABILITY AND ECONOMIC CONDITIONS

3.1 Specific Hypotheses Examined

Several broad hypotheses concerning the relationship of sustainability and economic factors are described below and applied, in varying degrees, to the projects examined in Guatemala. The discussion and analysis of these factors is intended to be expository rather than definitive, since the quantity and quality of the data are lacking.

Table 2 serves to summarize the projects that are felt to be pertinent to each of these hypotheses, and indicates whether they are judged to be in support of or contradictory to them. It should again be emphasized that this evaluation ignores the interdependencies between different factors, and the results should be interpreted accordingly.
To conserve space, in some instances the hypotheses listed in this table are abbreviated versions of those discussed below. In general, however, most of the hypotheses are self-explanatory and symmetric, in the sense that we have used that term earlier.

Table 2:

SUMMARY OF HYPOTHESIZED RELATIONS

	Relevant Projects	
Hypothesis	Supportive	Contradictory
H-1: Projects initiated during periods of economic decline are more sustainable.	Roosevelt Hospital Urban Water SCISP Health Services	Rural Water SINAPS
H-2: Projects terminated during periods of economic growth are more sustainable.	Roosevelt Hospital Urban Water SCISP Health Services Malaria Urban INFOM SINAPS Nutrition Planning	Rural Water(*) Mobile Units Family Planning RuralHealth/TSR Sugar Fortification(*) Corn Hybrid
H-3: The less uncertainty about recurring project benefits and costs, the more sustainable the project.	Roosevelt Hospital Malaria SCISP Health Services Urban SCISP Family Planning Mobile Units Nutrition Planning	
H-4: The greater is the public share in economic growth, the more sustainable are projects ending at that time.	Urban INFOM Sugar Fortification	Family Planning Nutrition Planning
H-5: The greater the number and degree of secondary benefits, the greater the sustainability of the project.	Malaria Family Planning Sugar Fortification Corn Hybrid Corn Fortification Rural Health/TSR	

Table 2:, continued

SUMMARY OF HYPOTHESIZED RELATIONS

Hypothesis	Relevant Projects: Supportive	Relevant Projects: Contradictory
H-6: Projects that produce immediate benefits and postpone costs are more sustainable.	Malaria Family Planning Latrines Rural Water Nutrition Planning	Rural Health/TSR
H-7: Projects that rely upon local input markets are more sustainable.	Malaria(*) Roosevelt Hospital Nutrition Planning Family Planning Rural Health/TSR	Sugar Fortification(*)

*In each of these cases there is some ambiguity about how to interpret the information available. See the appropriate section in the text for a discussion of these points.

H-1: PROJECTS INITIATED DURING PERIODS OF ECONOMIC DECLINE ARE MORE SUSTAINABLE.

AID support programs in Central America -- both economic and social -- often are countercyclical in nature. Even if the domestic economy is not truly declining, special demands on public resources (for example, demands originating from military conflict) can create the need for targeted assistance programs. Assuming similar health care objectives and "rational" project selection, AID would merely be supporting initiatives that the government itself would be interested in pursuing under more favorable economic and political conditions. This tends to favor their sustainability.

Projects initiated during periods of economic decline are also more likely to be extended by AID, and to reflect a larger difference between initial and final objectives. uncertainty about future conditions and reluctance to abandon the host institution in the midst of an economic or political crisis promote extensions, while the realities of the economic situation force consideration of the feasibility of particular program objectives and decrease their ambitiousness. For a variety of individual and organizational reasons, AID project managers also may be inclined to carry on with projects for more extended periods of time when the economy is performing poorly. We have not collected data on the number and duration of extensions for this study, nor on the apparent differences between initial and final objectives. Future sustainability analyses should consider collecting this type ofinformation to examine the hypothesis more thoroughly.

For purposes of this analysis, we have identified two periods of relative economic decline: 1950-55 and 1978-86. A total of five projects were initiated in these two periods, four of them in the earlier decline. Three of these were judged to have been sustained: Roosevelt Hospital, Urban Water, and SCISP Health Services. Rural Water and SINAPS were not sustained in the opinion of the investigators. Interestingly, both of these projects had excellent technical content but suffered from grievous deficiencies in the implementing institution in the judgment of the investigators.

H-2: PROJECTS TERMINATED DURING PERIODS OF ECONOMIC GROWTH ARE MORE SUSTAINABLE. CONVERSELY, PROJECTS ENDED DURING PERIODS OF DECLINE ARE LESS SUSTAINABLE.

There are two major rationales for this hypothesis. First and most obvious, host governments are more able and willing to take on additional fiscal burdens during growth periods, and less able and willing during declines. Second, the funding agency, as argued above, is more likely to "let go of the reins" during periods of economic advance, to the extent that the project termination date is a control variable.

Taking the 1956-77 period as one of erratic but persistent growth, eight projects terminated during this period and provide evidence. Three of these were not sustained: Rural Water, Mobile Units, and Family Planning. All three were troubled by poor implementation, and the Mobile Units project appears to have been imposed on the MOH and somewhat lacking in technical content. Of the five sustained projects, only SCISP Health Services faced any serious hurdles in other aspects -- here again, deficiencies in the implementing institution.

No projects terminated during the earlier period of decline, but five have terminated since the decline beginning in 1978. SINAPS and Nutrition Planning failed as expected, but the TSR program and two nutrition projects (Sugar and Corn) provide contradictory evidence. In the case of Sugar Fortification, the project did effectively shut down in the early years of the recession, but has since been reactivated at the insistence of the government.

H-3: THE LESS UNCERTAINTY ABOUT RECURRING PROJECT BENEFITS AND COSTS, THE MORE SUSTAINABLE THE PROJECT.

The level of detail available in the case studies is generally insufficient to put this hypothesis to stringent tests. In some instances, however, there is suggestive evidence.

The Ministry had reasonably good estimates of what it would cost to operate Roosevelt Hospital based upon its own experience and international standards. Malaria program costs were rising, of course, but they were predictable and management was able to respond to this with internal adjustments. SCISP had a long track record of efficient administration in the country, and could provide reasonably accurate cost projections for Health Services. Each of these projects was sustained, consistent with the hypothesis.

Projects which introduced new kinds of activities with which the MOH had no prior experience, and those for which future service demands were unknown were less likely to be sustained: Family Planning, Mobile Units, and Nutrition Planning fall into this category, and none of these was judged to be sustained.

H-4: THE GREATER IS THE PUBLIC SHARE IN ECONOMIC GROWTH, THE MORE SUSTAINABLE ARE PROJECTS WHICH END DURING THAT PERIOD. SYMMETRICALLY, THE LESS THE SHARE IN DECREASES, THE MORE SUSTAINABLE.

The only steady period of relative growth for the public sector during this period was from 1976-81 following the earthquake. Only two of the four projects that ended during this period were judged to be sustained. As noted above, however, the growth during this period was somewhat in favor of non-health activities as a result of post-earthquake recuperation efforts.

H-5: THE GREATER THE NUMBER AND DEGREE OF SECONDARY BENEFITS ("POSITIVE EXTERNALITIES"), THE GREATER THE SUSTAINABILITY OF THE PROJECT. SIMILARLY, THE GREATER THE NUMBER AND DEGREE OF INDIRECT COSTS ("NEGATIVE EXTERNALITIES"), THE LESS SUSTAINABLE THE PROJECT.

The Malaria program undoubtedly produced substantial health benefits for the population in malarious regions by eliminating or reducing a life- and health-threatening disease. At the same time however, it created the opportunity to safely and economically cultivate large areas of the country that had previously been reasonably inaccessible. The economic benefits to the nation were substantial, and this was repeatedly cited as one of the major reasons why SNEM continued to receive substantial economic support from the government following withdrawal of AID and other external support. To be sure, the relative share of SNEM funding in the overall MOH budget declined, but the nominal levels never decreased, and they appear to have been more and more concentrated in those areas that produced export market crops.

On the other hand, Family Planning programs created significant external costs for those who did not and would not use these services, primarily for moral or religious motives. Independent of the benefits that could and did accrue to users of these services, a large countervailing political force emerged that served to emasculate the program and make its sustainability within the MOH itself virtually impossible.

Interpretation of the projects involving INCAP is somewhat problematic in this respect. Over time, INCAP has evolved from a primarily research-oriented institution to one which is more involved in technical assistance efforts. However, most of their projects in fact integrate these elements to varying degrees. Dissemination of research results would, therefore, be considered a secondary benefit, independent of whether the project in question succeeded or failed.

Looking to the three specific fortification projects cited in the case study, this hypothesis would appear to be confirmed in each case. Sugar producers immediately balked at continuation of the Vitamin A fortification program because of the additional costs of production required. Even though they were permitted to pass along these costs to consumers, the recession at that time put them at a competitive disadvantage with producers not fortifying their product. These indirect costs led to suspension of the program for several years, until the modest recent economic turnaround began and the new administration determined that the indirect benefits to consumers outweighed these indirect costs.

The Corn Hybrid project was a joint effort with Mexico and could be said to have had the indirect benefit of improved international exchange of information and relations. At the same time, it was reported to have improved nutritional levels on large commercial farms and therefore, indirectly, the productivity of the workers on those farms. A corn fortification project, not reported in the summary table but discussed in the text, failed because of the unacceptable taste the additive produced in tortillas made from this corn -- an indirect cost.

The Nutrition Planning Project placed pressures on officials in various departments of the MOH to consider the role of nutrition in a national health policy, at a time when the doctors within the system were ill-disposed to pay it any attention whatsoever. Although nominally a functioning unit within the MOH, nutrition specialists are scattered and lack guidance because of the internal opposition indirectly provoked.

The Rural Health/TSR program has repeatedly demonstrated its ability to provide services beyond what was originally envisioned for them. The role of TSRs following the earthquake and the pressure they have managed to take off other levels of the health system are indirect benefits that have begun to turn around the begrudging attitude of other, closely affiliated health care professionals. This program was judged to be sustained in large measure because of these indirect effects, and it is anticipated that training of TSRs will begin anew in the coming year.

H-6: PROJECTS THAT PRODUCE IMMEDIATE BENEFITS AND POSTPONE COSTS ARE MORE SUSTAINABLE THAN THOSE WITH IMMEDIATE COSTS AND LONG-TERM BENEFITS.

The rationale for this hypothesis is primarily based in the economic principle of discounting. Five of the six projects felt to be applicable to this hypothesis supported it.

The most clear example of this principle arose in the case of the malaria program. The benefits of expanded agricultural output were almost immediate, while the day when the host government would absorb the total costs of the program still lay ahead and the exact terms, time, and costs were uncertain. Health benefits were also not long in coming for the malaria program, although these benefits are much less tangible than the former -- the failure to contract malaria is categorically different from the observable increase in agricultural output.

The Family Planning program provides a supportive and contrasting example here as well. The economic and social costs of public support for contraception and other family planning interventions were immediate and visible, while the benefits of reduced costs of social programs associated with a smaller population in the future were remote and speculative.

Water supply projects in general were sustained, and they produced outputs almost immediately while system maintenance costs lay still in the future. Latrine projects failed as a rule, generally because unsightly and often culturally unacceptable latrines presented themselves immediately, while the improved health status they promised was somewhere in the future and, in the minds of the community, not altogether that certain. The Nutrition Planning project forced busy managers to take time away from pressing day-to-day activities -- an immediate cost to them -- in the hope that the resulting planning activities would one day improve nutritional status of the population. This project was also judged to have been a failure.

H-7: PROJECTS THAT RELY MORE UPON LOCAL INPUT MARKETS ARE MORE SUSTAINABLE.

This relates to the hypothesis that projects that utilize inputs with stable or declining real and nominal price histories are more sustainable. Typically, these will be labor inputs in Central America. Again, five of the six projects pertinent here support the hypotheses.

Projects that were judged not to have been sustained (Nutrition Planning and Family Planning) relied heavily on external training and materials, even when those employed by the project were locals. The Malaria, Rural Health/TSR, and Roosevelt Hospital projects were much more dependent on local resources in comparison.

Sugar Fortification is somewhat more difficult to interpret. While it relied entirely on local producers, the major ingredient for success of the project -- the Vitamin A additive -- had to be imported. Similar ambiguities arise in the Malaria Project which depends to some extent on imported insecticides. The program relied heavily on these imports early on, but the shift to control strategies reduced this dependency, and the present efforts to integrate portions of the program into primary health care are further support for the hypothesis. For these reasons, the classification of these projects shown in Table 2 is somewhat more speculative than the others.

A recurring economic theme emerged in the Antigua workshop that culminated the field activity for this project. In one way or another, sustainability or continuity was repeatedly linked to the degree to which projects relied upon local markets for inputs. The foreign exchange factor directly takes up this point, but does not carry it far enough. In addition to local markets for such things as PVC piping (seen to promote the sustainability of certain kinds of water projects), there are also a variety of local labor markets that can be relied upon or even developed.

Basically, spending health sector project funds in the country they are meant to assist adds important secondary economic benefits to the direct health care benefits that are sought by the project. As long as this does not affect the quality or quantity of health care services delivery, local market reliance enhances the sustainability of projects. For some kinds of health care projects, it may even be worthwhile to consider diverting project funds to creation and/or stimulation of local markets or industries. These would typically be long-term projects with a large (or potentially large) dependence on foreign sources for important project inputs. Training programs essentially seek the same kinds of things -- a steady long-term supply of capable personnel and reduced dependence on external technical assistance.

4. ROLE OF QUANTITATIVE ANALYSIS

Quantitative analyses can be put to good use in these kinds of projects, but it is important to understand the nature and limitations of data that will normally be encountered and the kinds of adjustments or adaptations that may be required. This section attempts to describe some of these problems and suggest ways of managing them in future sustainability studies.

4.1 Quality and Quantity of Information

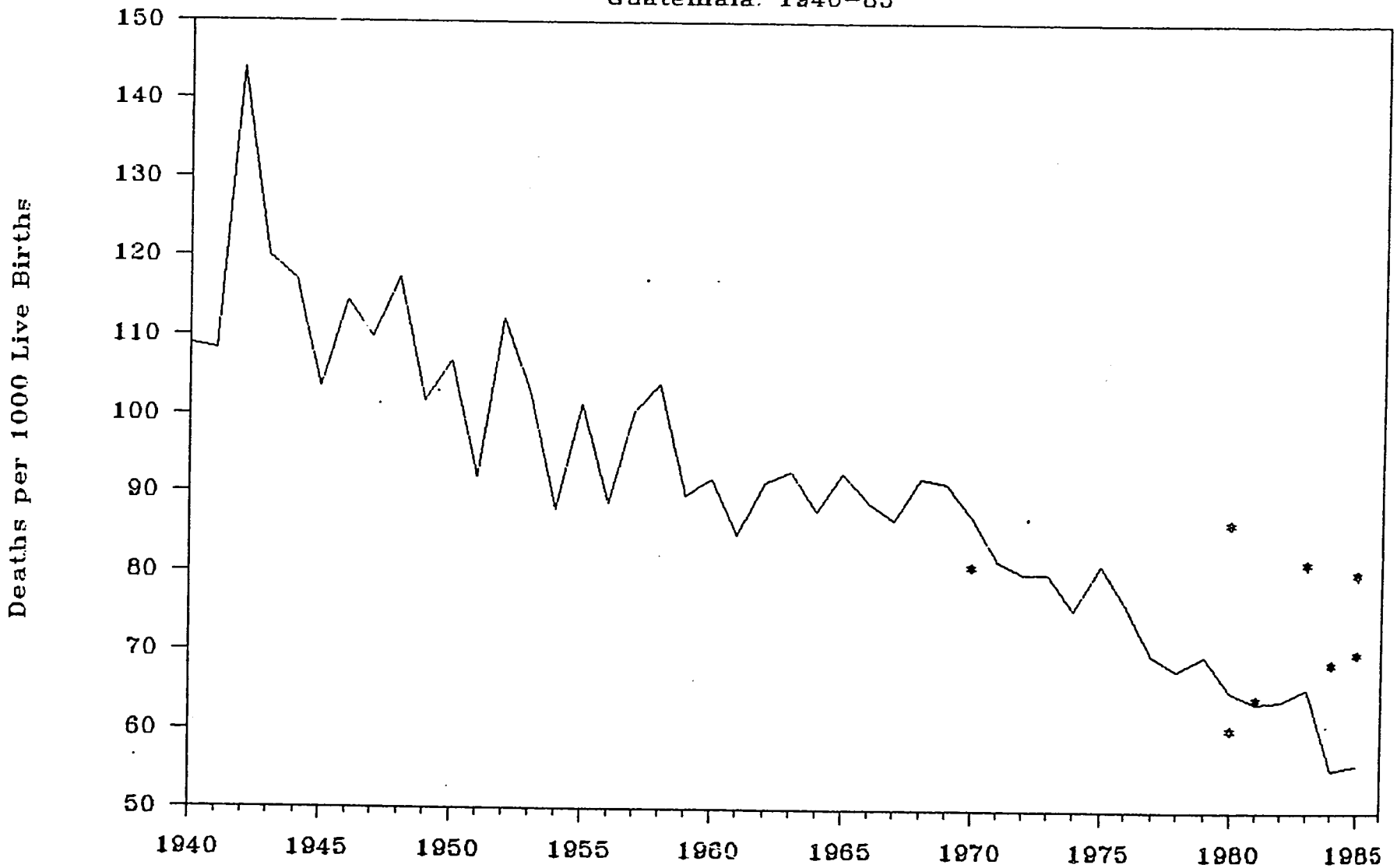
Significant problems and limitations confront analysts who wish to conduct quantitative analyses in developing countries, especially quantitative analyses dependent on time series data. Typically, there will be no lack of raw data. In this study, for example, we were able to access annual reports for some divisions of the Ministry of Health dating back to 1935. The problem is that there are large variations in the type, level of aggregation, and collection procedures employed over time. Important programmatic changes are normally accompanied by changes in the type, frequency, and quantity of data that are collected. There is no immediate incentive to continue collection of historic data, and time series are interrupted as a result.

Budgetary data are more reliable than most, because there are others reviewing these figures -- principally auditors, but also potential competitors for those funds whose interests would be served by detecting misuse or inefficiencies that would not concern auditors. Even here, however, there can be significant breaks in the series associated with explicit changes in accounting or budgeting principles and procedures or with implicit changes in the interpretation or application of these principles and procedures. Program-based budgets provide much more detailed and reliable information for researchers, but they often serve only as a starting point for developing the kind of

FIGURE 10

Infant Mortality Rates

Guatemala: 1940–85



information desired. For example, development of estimates of public health sector investment levels required examination and disaggregation of as many as eight other government accounts beyond those of the Ministry of Health.

Performance or output data, on the other hand, are only rarely put to the test of independent corroboration, and much less reliable as a result. Figure 10, for example, provides official government estimates of infant mortality rates over time, along with other estimates culled from a variety of other sources for recent years -- including some estimates from other Guatemalan government agencies. Despite these discrepancies, such performance data can be quite useful if it is safe to assume that the biases in the data are consistent over time. In many settings this is a reasonable assumption, since reporting and aggregation procedures change only very slowly in most government institutions.

[INSERT FIGURE 10]

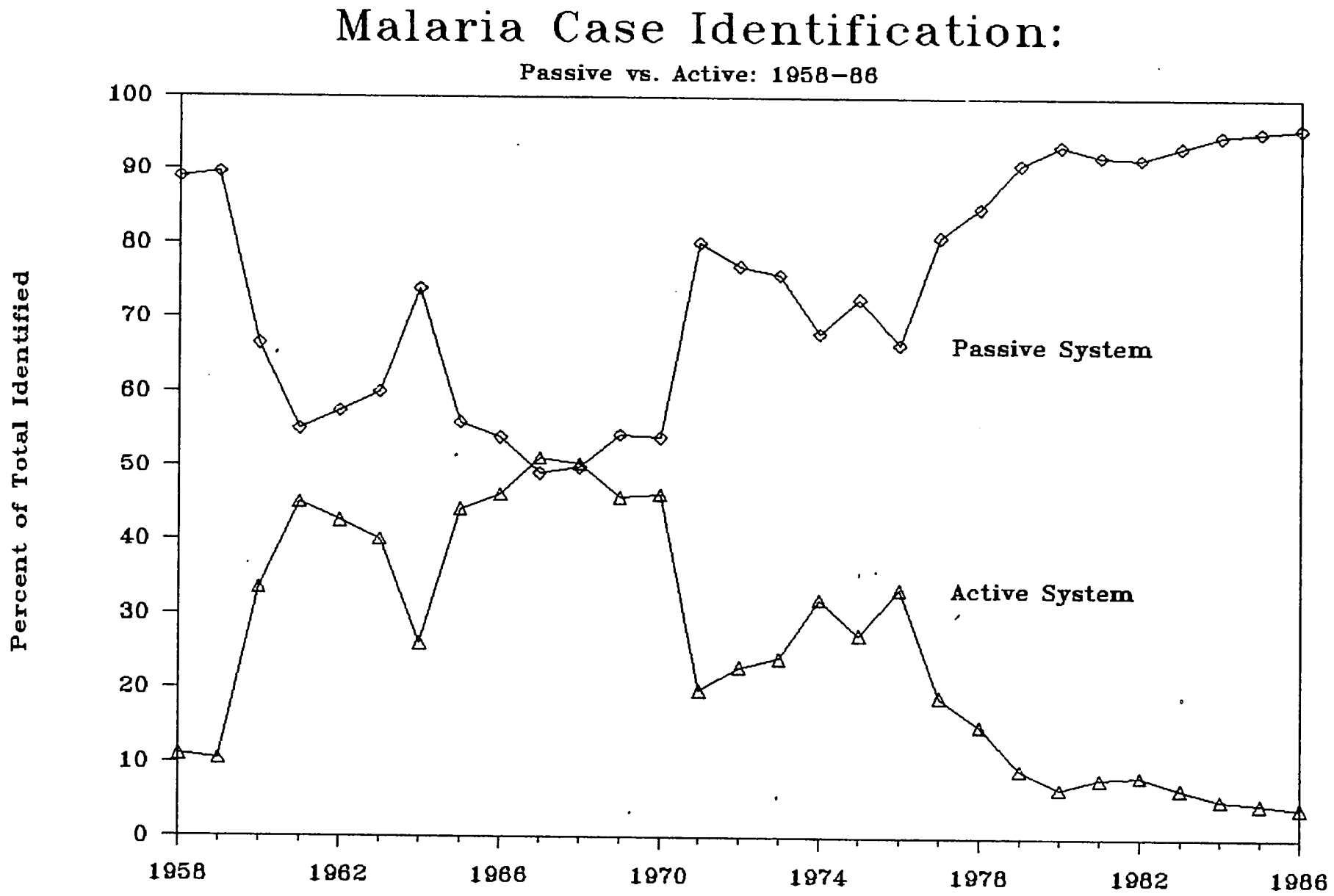
Problems can therefore be expected with both financial and performance information, especially as the period of time under study grows larger.
Both of these types of data are needed for project evaluations, however, if the evaluation is to go much beyond matters of opinion.

Redundancy is always a sound strategy in collecting and verifying data. Because of the predominant concern over where the money went rather than what the money did, economic and financial data will be comparatively abundant and "performance" or "output" data may only be collected consistently by the unit under investigation. These data are inherently suspect. For example, the actual annual number of malaria cases is commonly thought to be four or five times larger than the figures reported by SNEM. Similarly, outside groups take a much dimmer view of such things as morbidity and mortality rates or nutrition levels than the conditions reflected in MOH statistics.

Likewise, malaria is only officially recognized after a positive blood test. The "passive" detection system, which now takes almost all of these blood tests and detects almost all cases defined this way (Figure 11), does not deal with a representative sample of the population, and the estimated rate of incidence of malaria appears to be positively related to the number of blood samples taken. If a greater percentage of the population at risk takes the trouble to be tested when malaria is actually more prevalent, it could plausibly be argued that the estimated rates of malaria produced by the passive detection system become more accurate as the rate increases. But the degree of error in these estimates remains largely unknown.

[INSERT FIGURE 11]

F I G U R E 11


Malaria Case Identification:
Passive vs. Active: 1958–86
Percent of Total Identified
100
90
80
70
60
50
40
30
20
10
0
1958
1962
1966
1970
1974
1978
1982
1986
Passive System
Active System

The reasons for these inaccuracies are often benign. In the malaria case, for example, the "surveillance" system that has been in place for over thirty years now simply cannot provide the information that is required; it is structurally incapable of doing so. Errors in diagnoses are quite common in developing nations, especially at lower levels of the health system. For these reasons, it is important to identify as many independent data sources as possible, even if they do not all cover the same time periods or geographic regions. These data provide checks on one another and enable an assessment of the general accuracy or reliability of certain types of information or sources.

Data that are demonstrably inaccurate or biased can still prove to be valuable for the analysis. Systematic biases will normally be unable to hide underlying trends, and the ability to recognize trends and shifts in trends is sufficient for many kinds of exploratory analysis. Even though the exact values of key parameters may remain unknown, many different types of relative analyses remain available and useful. Whatever the actual number of malaria cases in any year, the data collected by SNEM probably provide a reasonably accurate indication of the important periods and trends since about 1960.

As indicated earlier, consistent and intact time series data are scarce and inherently suspect. As a rule, baseline data suitable for evaluating the effects of a new program or organization do not exist. The initiation of these programs frequently will introduce changes in the way management information is defined, produced, gathered, and handled. The system for tabulating malaria cases changed drastically in 1955, and there was no attempt to maintain the old system for a period of time so that a correlation between the two series could be established. As a result, it is treacherous to provide more than anecdotal comparisons of malaria rates in the periods before and after creation of SNEM because the data are incompatible and incomparable. Certainly, the first five years or more of time series data are of questionable reliability, as new information systems and needs associated with new programs evolve. The apparent escalation of malaria cases in the early years of SNEM, for example, was a misleading artifact of the expanding information system and re-interpretations of key variables -- how malaria was defined, among other things.

A similar situation arose when the government of Guatemala shifted to a program budget in 1964, and it took some time before government accountants became familiar and comfortable with the new system. Any program-level financial analyses that covered this period would have to consider not just the accounting change but also the early unreliability of the program budget data. Less publicized but equally distortionary effects can result from internal changes in definitions or interpretations of key variables. The Reagan administration provided a striking example of this when, through a combination of re-interpreted legal and technical standards, it managed

overnight to cut the number of Americans living in poverty in half. The lack of standardized definitions is a severe problem in Guatemala as well -- there is even disagreement between regions over what it means to be a "child", so that cross-sectional comparisons of such things as child mortality rates are problematic.

Yet another "hidden" discontinuity in time series data was uncovered in Guatemala. As a result of the 1972 census, population estimates for previous years were adjusted downwards by some 17 percent. Any historical "coverage" or "rate" information reported prior to this year would then be in error by a similar amount. Gross mortality rates, malaria positivity rates, and key sampling percentages all would be higher, for example, and the 17 percent difference could make a big difference in judging the effectiveness of individual programs or projects that spanned this period.

The following Tables present the working hypotheses and the financing questions used by the team:

Table 3:

GENERAL ECONOMIC ENVIRONMENT
WORKING HYPOTHESES

The following is a somewhat more complete listing of the economic hypotheses considered by the team during the course of this study. Some of these were consolidated into one "symmetric" hypothesis, while others simply could not be addressed with the data available. The subsequent process of developing specific indicator variables and interview questions associated with these hypotheses was discussed and illustrated earlier in the methodology section.

1. The less uncertainty about recurring project benefits and costs, the more sustainable the project.

2. Projects initiated during periods of economic decline are more sustainable. (These projects are also more likely to be extended and to reflect a larger difference between initial and final objectives.)

3. Projects terminated during periods of economic growth are more sustainable.

4. The greater is the public share in economic growth, the more sustainable are projects. (Symmetrically, the less the share in decreases, the more sustainable.)

5. The greater is the Ministry's share in public sector growth, the more sustainable the project. (Symmetrically, the less the share in decreases, the more sustainable.)

6. The greater is the program division share in MOH budget increases, the more sustainable the program. (Symmetrically, the less the share in decreases, the more sustainable.)

7. Projects that have specific and significant long-run cost-containment and cost-reduction components are more sustainable during periods of economic decline.

8. Projects that seek to extend the level or quality of service are less sustainable during periods of economic decline.

9. The greater the number and degree of secondary benefits ("positive externalities"), the greater the sustainability of the project. Similarly, the greater the number and degree of indirect costs, the less sustainable the project.

10. More "egalitarian" income distributions (and economic growth that "levelizes" the income distribution) promote sustainability of projects.

11. Because of discounting, projects that produce immediate benefits and postpone costs are more sustainable than those with immediate costs and long-term benefits. (Relationship to "visibility" of outputs in project characteristics.)

12. Projects that rely on relatively durable and maintenance-free capital equipment are more sustainable.

13. Projects that utilize inputs with stable or declining real and nominal price histories are more sustainable.

14. Projects that rely more upon local input markets are more sustainable. Similarly, projects that really upon regional suppliers are more sustainable than those that rely upon international sources.

Table 4

CONTEXTUAL FACTORS:
FINANCING QUESTIONS

1. What percentage of total costs had the MOH absorbed by the end of the project?

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

3. How much of the estimated annual recurring costs required (a) capital investment and (b) foreign exchange?

4. Was this requirement for continued importation due to unavailability of suitable local or regional markets or was it an institutional requirement?

5. Did the project reduce the funding available for other MOH programs, curative care programs in particular?

6. Were the financing requirements and mechanisms at the end of the project essentially the same as those during the project? (Describe significant differences.)

7. Was there any renegotiation of financing terms or mechanisms during or following termination of the project?

8. Were there any significant changes in types of taxes, tax levels, and or tax structure during the relevant period? (These changes need not have anything to do with the project directly.)

9. What specific mechanisms were available for continued financing (user fees, quotas, local taxes, etc.)?

10. Was there any possibility of substituting "donated" services or goods (labor, materials, office space, etc.) in lieu of explicit financial contributions?

11. Who was "responsible" for continued financing (beneficiaries, communities, regions, central, external, etc.)?

12. Who "should" have been responsible from a public finance standpoint (considering "spillover" effects)?

13. Was there any information available on the ability to pay of project beneficiaries?

14. Would the consequences of lack of continued financing be immediate loss of services, gradual decrease of level or quality of services, or the inability to extend similar services elsewhere?

15. Were there historical precedents for the kind of financing adopted?

16. Were there established mechanisms for financial evaluation of projects?

17. Did the financing mechanism require changes in historical practice (e.g., paying for what used to be free)?

18. Was there any phase-in of the new financing mechanism, including clear indication of when AID support would end?

19. Were there any other external donors already identified?

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ANNEX 5.3

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ANNEX 5.4

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ANNEX 5.5

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ANNEX 5.6

Extension of Health Services to Finca Workers.
ANNEX 5.7

Study of Health - Related Private Voluntary Organizations in Guatemala.
ANNEX 5.8

Financing the Health Sector of Guatemala.
ANNEX 5.9

Efficiency of the Guatemala Health Sector.
ANNEX 5.10

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ANNEX 5.11

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ANNEX 5.12

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