| BIBLIOGRAPHIC DATA SHEET | 1. CONTROL NUMBER PN-AAH-391 | 2. SUBJECT CLASSIFICATION (695) NA00-0000-G356 |
|---|---|---|

3. TITLE AND SUBTITLE (240)

Guatemala health sector assessment

4. PERSONAL AUTHORS (100)

Schieck, F. W.; Hill, G. A.; Parker, N. J.; Long, E. C.

5. CORPORATE AUTHORS (101)

AID/LA/USAID/Guatemala

| 6. DOCUMENT DATE (110) | 7. NUMBER OF PAGES (120) | 8. ARC NUMBER (170) |
|---|---|---|
| 1977 | 343p. | 614.Ø97281.S332 |

9. REFERENCE ORGANIZATION (130)

Guatemala

10. SUPPLEMENTARY NOTES (500)

(Annexes, PN-AAH-392 - PN-AAH-407)

11. ABSTRACT (950)

12. DESCRIPTORS (920)

Sector analysis
Guatemala
Health services
Environmental health
Health
Public health
Family planning
Nutrition

13. PROJECT NUMBER (150)

14. CONTRACT NO.(140)

Guatemala

15. CONTRACT TYPE (140)

16. TYPE OF DOCUMENT (160)

AID 590-7 (10-79)

PN-AAH-391

# HEALTH SECTOR ASSESSMENT

# GUATEMALA

submitted by

THE UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT MISSION

to

GUATEMALA


Frederick W. Schieck
Mission Director

George A. Hill
Program Officer

Norma J. Parker
Loan Officer

Dr. E. Croft Long
Chief, Public Health Division


November 1977

## ABBREVIATIONS USED IN THE GUATEMALA HEALTH SECTOR ASSESSMENT

| | |
|---|---|
| ACOGUA | Asociación de Cafetaleros del Oriente en Guatemala (Coffee Growers Association of the Eastern Region) |
| AGA | Asociación General de Agricultores (Farmers Association) |
| ANACAFE | Asociación Nacional del Café (National Coffee Association) |
| APROFAM | Asociación Pro-Bienestar de la Familia (Family Planning Association) |
| BID | Banco Interamericano de Desarrollo (Inter-American Development Bank - IDB) |
| BIRF | Banco Internacional de Reconstrucción y Fomento (Banco Mundial) (International Bank of Reconstruction and Development - IBRD) (World Bank) |
| CARS | Central American Research Station (Centro de Investigaciones de Centro América) |
| CBD | Community Based Distribution (Distribución Basada en la Comunidad) |
| CELADE | Centro Latinoamericano de Demografía (Latin American Office of Demography) |
| CEPA | Comité Evangélico Permanente de Ayuda (Permanent Evangelical Committee for Help) |
| CIDA | Comité Interamericano de Desarrollo Agrícola (Interamerican Agricultural Development Committee) |
| CNPE | Consejo Nacional de Planificación Económica (National Economic Planning Council) |
| CRS | Catholic Relief Services (Servicios Católicos de Ayuda - SCA) |
| DDC | Dirección de Desarrollo de la Comunidad (Community Development Office) |
| DIMIF | División Materno-Infantil y Familiar (Maternal-Child and Family Division) |

| | |
|---|---|
| DGSS | Dirección General de Servicios de Salud<br>(Health Services Office) |
| DSA | División de Saneamiento Ambiental<br>(Environmental Sanitation Division) |
| EPS | Ejercicio Profesional Supervisado<br>(Supervised Professional Training) |
| FP | Family Planning<br>(Planificación Familiar) |
| FPIA | Family Planning International Association<br>(Asociación Internacional de Planificación Familiar) |
| GOG | Government of Guatemala<br>(Gobierno de Guatemala) |
| HOPE | Project Hope<br>(Proyecto Hope) |
| HPVO | Health Related Private Voluntary Organization<br>(Organización Voluntaria Privada Relacionada con la Salud - OVPR) |
| IBRD | International Bank of Reconstruction and Development (World Bank)<br>(Banco Internacional de Reconstrucción y Fomento - BIRF) |
| IDB | Inter-American Development Bank<br>(Banco Interamericano de Desarrollo - BID) |
| IDRC | International Development Research Centre<br>(Centro de Investigaciones Internacionales de Desarrollo) |
| IE&C | Information, Education and Communication<br>(Información, Educación y Communicación) |
| IGN | Instituto Geográfico Nacional<br>(National Geographic Institute) |
| IGSS | Instituto Guatemalteco de Seguridad Social<br>(Guatemalan Social Security Institute) |
| III | Instituto Indigenista Nacional<br>(National Institute of Indigenous People) |
| IIESO | Instituto de Investigaciones Económicas y Sociales de Occidente<br>(Western Institute for Economic and Social Research) |
| INCAE | Instituto Centroamericano de Administración de Empresas<br>(Central American Institute of Business Administration) |

| | |
|---|---|
| INCAP | Instituto de Nutrición de Centro América y Panamá<br>(Institute of Nutrition of Central America and Panama) |
| INDAPS | Instituto de Adiestramiento de Personal de Salud<br>(Health Personnel Training Institute) |
| INFOM | Instituto de Fomento Municipal<br>(Institute for Municipal Development) |
| INTA | Instituto Nacional de Transformación Agraria<br>(National Institute of Agrarian Reform) |
| INTECAP | Instituto Técnico de Capacitación y Productividad<br>(Technical Training Institute) |
| IPPF | International Planned Parenthood Federation<br>(Federación Internacional de Paternidad Planificada) |
| MCH | Maternal and Child Health<br>(Salud Materno Infantil - SMI) |
| MOH | Ministry of Health<br>(Ministerio de Salud Pública y Asistencia Social - MSPAS) |
| MOL | Ministry of Labor<br>(Ministerio de Trabajo y Previsión Social - MTPS) |
| MSPAS | Ministerio de Salud Pública y Asistencia Social<br>(Ministry of Health - MOH) |
| MTPS | Ministerio de Trabajo y Previsión Social<br>(Ministry of Labor - MOL) |
| OCAI | Oficina de Coordinación de Asuntos Internacionales<br>(Coordinating Office for International Affairs) |
| OMS | Organización Mundial de la Salud<br>(World Health Organization - WHO) |
| OPS | Organización Panamericana de la Salud<br>(Pan American Health Organization - PAHO) |
| OVP | Organización Voluntaria Privada<br>(Private Voluntary Organization - PVO) |

| | |
|---|---|
| PAHO | Pan American Health Organization<br>(Organización Panamericana de la Salud - OPS) |
| SCA | Servicios Católicos de Ayuda<br>(Catholic Relief Services - CRS) |
| SERN | Servicio de Recuperación Nutricional<br>(Nutritional Recuperation Service) |
| SIECA | Secretaría Permanente del Tratado General de Integración Económica de Centro América<br>(Central American Economic Integration Office) |
| SMI | Salud Materno-Infantil<br>(Maternal and Child Health - MCH) |
| TAR | Técnico en Acueductos Rurales<br>(Rural Aqueducts Technician) |
| TSR | Técnico de Salud Rural<br>(Rural Health Technician) |
| UNEPAR | Unidad Ejecutora para el Programa de Acueductos Rurales<br>(Rural Aqueducts Program Office) |
| USAID | United States Agency for International Development<br>(Agencia para el Desarrollo Internacional) |
| USAID/G | USAID/Guatemala |
| WHO | World Health Organization<br>(Organización Mundial de la Salud - OMS) |

## ACKNOWLEDGEMENT

Contributions to the Health Sector Assessment by the Government of Guatemala and USAID/Guatemala are so numerous that only the principal contributors can be cited. These are:

| Guatemalan Counterpart | U. S. Counterpart | Contribution |
|---|---|---|
| Carlos Cossich, M.D.<br>President<br>Guatemalan Academy of Medical, Physical and Natural Sciences | Charles Keaty, M.P.H.<br>Health Care Administrator/Planner | General coordination of the Health Sector Assessment. |
| Gabriel Evans, M.D.<br>Office of the Coordinator of International Affairs<br>Ministry of Public Health and Social Assistance | Charles Keaty, M.P.H.<br>Health Care Administrator/Planner | Prepared a Study of Health-Related Private Voluntary Organizations in Guatemala. |
| Alfredo Méndez, Ph.D.<br>Chairman<br>Department of Anthropology<br>Universidad del Valle<br><br>Kjell Enge<br>Institute of Nutrition of Central America and Panama | Polly Harrison, Ph.D.<br>Anthropologist | Reviewed all aspects of the HSA from an anthropological point of view and provided special reports on community participation, communicable disease control, maternal/child health, and environmental sanitation behavior/attitudes. |
| Otto Zeissig, M.D.<br>Epidemiologist<br>Ministry of Public Health and Social Assistance | Kent Campbell, M.D.<br>Epidemiologist<br>School of Public Health<br>Harvard University | Developed epidemiological baseline data for the HSA. |
| Eduardo Rodríguez-Rouanet, M.D.<br><br>Juan Manuel Vega, Attorney of Federico Fahsen Associates | Gordon D. Brown, Ph.D.<br>Professor-in-Charge<br>Graduate Program in Community Systems Planning and Development<br>Pennsylvania State University | Analyzed finca-worker health problems and recommended a national program for providing health services to finca workers. |
| Carlos Durán, Engineer<br>Health Unit, National Economic Planning Council | Clifton Flanniken, Engineer | Analyzed the current status of health facility and equipment maintenance with recommendations for improvement of the national maintenance program. |

| | | |
|---|---|---|
| Carlos Estrada, M.D.<br>Health Unit, National Economic Planning Council<br><br>Institute of Nutrition of Central America and Panama | Norma Jean Parker<br>USAID/Guatemala | Analyzed nutrition conditions and made recommendations for improvements. |
| Juan Lee Samayoa, M.P.H.<br>Nutritionist/Health Planner<br>Health Unit, National Economic Planning Council | Robert Grosse, Ph.D.<br>Professor-in-Charge<br>International Health Program<br>University of Michigan | Analyzed the constraints to the further extension of health services to the rural population. |
| Carlos Durán, Engineer,<br>Health Unit, National Economic Planning Council | Charles Pineo, Engineer,<br>Technical Assistance Bureau/Health, USAID | Analyzed major water and excreta problems in rural Guatemala with recommendations for solutions. |
| Gustavo Morales, M.D.<br>Pediatrician<br>Health Unit, National Economic Planning Council<br><br>J. Antonio Muñoz, M.D.<br>Nutritionist<br>Guatemalan Academy of Medical, Physical and Natural Sciences | Lee Huhn, M.D.<br>Pediatrician<br><br>Polly Harrison, Ph.D.<br>Anthropologist | Collected and analyzed available data on MCH care, including trained and untrained midwives, and produced a report including recommendations. |
| Hugo Figueroa, D.D.S.<br>Health Unit, National Economic Planning Council | E. Croft Long, M.D., Ph.D.<br>USAID/Guatemala | Analyzed human resources problems including needs, training programs, and financial implications. |
| Carlos Durán, Engineer<br>Health Unit, National Economic Planning Council | Herbert Caudill<br>Sanitary Engineer<br>USAID/Panama | Analyzed solid waste disposal problems and made recommendations for programs for improvement. |
| María Luisa Hernández de Alveño, Economist,<br><br>Mario Ovalle, Economist,<br><br>Guillermo Chávez, Economist,<br>Health Unit, National Economic Planning Council | Clark Joel, Economist<br>USAID/ROCAP<br><br>Robert Robertson, Ph.D.<br>Economist<br>Office of International Health<br>Department of Health, Education and Welfare, U.S. | Analyzed the current expenditures and sources of funds of the health sector and made recommendations for improving the revenue for the sector. |
| Otto Zeissig, M.D.<br>Epidemiologist<br>Ministry of Public Health and Social Assistance | Frederick Trowbridge, M.D.<br>Epidemiologist<br>U.S. Communicable Disease Control Center<br>El Salvador | Compiled a Regional Epidemiological Summary as part of the analysis of the health problems of finca workers. |

| | | |
|---|---|---|
| Carlos Estrada, M.D.<br><br>Juan Lee Samayoa, M.P.H.<br>Health Unit, National Economic Planning Council | Milton Roemer, M.D.<br>Professor of Public Health<br>University of California at Los Angeles | Assessed possible levels of institutional coordination between the Ministry of Health and the Social Security System; analyzed the general lack of health sector efficiency. |
| | Geraldine Kaaty, M.P.H.<br>Health Care Administrator | Co-authored a Study of the Health-Related Private Voluntary Organizations in Guatemala. Edited consultant reports for inclusion in the HSA and edited sections of the HSA. |
| | Cynthia Burski-Braaton<br>Family Planning Consultant | Analyzed the past and current family planning programs and made recommendations for improvement. |
| Jorge Arias B., Engineer<br>Instituto Centroamericano de Investigación y Tecnología Industrial (ICAITI) and Universidad del Valle | | Developed an annotated bibliography of family planning studies conducted in Guatemala from 1960 to 1976. |

Reports based on the work of the consultants listed above appear in the Annex Section to the Guatemala Health Sector Assessment. However, during review of the HSA by USAID/Guatemala and by the Government of Guatemala, the HSA reports have been expanded, corrected for errors-in-fact, and mediated for differences between various reports. Thus, the reports are products of the HSA staff rather than of individuals, and no Annex is attributed to any single individual.

The Guatemalan and USAID/G staffs of the Health Sector Assessment wish to extend special thanks to Kenneth Farr, Ph.D., of the Office of International Health, Department of Health, Education and Welfare, Washington, for his untiring effort to make the Assessment process as valuable as possible to both the Government of Guatemala and USAID. As the official Washington coordinator for the Assessment, Dr. Farr responded promptly to all requests made by the HSA staff and made several trips to Guatemala to develop the initial work scope, provide general advice and guidance on preparation of consultant reports, and assist in the preparation of the final HSA document.

Thanks are also extended to Mark Laskin, Scott Loomis, and John Daly, of the Office of International Health, Department of Health, Education and Welfare, Washington, for their willing participation in the development of the Assessment.

Special recognition must go to Dr. Carlos Estrada Sandoval and the staff of the Health Unit of the National Economic Planning Council, especially Dr. Gustavo Morales and Engineer Carlos Durán. Their efforts, combined with help provided by Dr. Carlos Cossich and Dr. Alberto Viau of the Guatemalan Academy of Medical, Physical and Natural Sciences, made it possible for the U.S. consultants to prepare and complete their reports in a short period of time.

Sincere appreciation is extended to the staff of the Ministry of Health who patiently discussed health issues with both the U.S. and Guatemalan consultants. Special appreciation is extended to Dr. Angel Paz Cojulún, Director General, Ministry of Health; Dr. Leonel Barrios Santos, Assistant Director, Public Health; Dr. Jaime Solórzano, Director, Office of Programming, and the Area Chiefs of all Health Areas.

Finally, special thanks are given to Clara Crowe, Victoria Echeverría and Mirna Oliva who typed and retyped the reports for the Health Sector Assessment and all its Annexes, and to Esperanza Tercero and associates who translated most of the documents.

## PREFACE

The basic purpose of this Health Sector Assessment is to provide a comprehensive overview of some selected aspects of the Guatemala health sector. At the request of the Health Unit of the National Economic Planning Council, the assessment activities were organized to correspond with the five major elements of the Government's Five-Year National Health Plan, Plan Nacional de Salud 1975-1979. 1/

This approach was selected to assist the Government of Guatemala (GOG) to determine their progress in realizing planned objectives, and to satisfy the requirements of USAID for a comprehensive review of the health status of the population of Guatemala and the health care delivery system which serves the population.

Thus, the format used for the Health Sector Assessment is identical to that of the Five-Year National Health Plan, and covers the areas of:

1. Extension of services, including family planning.
2. Increasing efficiency of the health sector, including maintenance of facilities and equipment.
3. Human resources.
4. Nutrition.
5. Environmental sanitation.

From the outset, the project was a collaborative venture. A coordinating committee was established, consisting of Dr. E. Croft Long, Public Health Division, USAID; Dr. Carlos Estrada Sandoval, Health Unit, National Economic Planning Council (CNPE); and Dr. Alberto Viau, the Guatemalan Academy of Medical, Physical and Natural Sciences. This committee was staffed by Charles Keaty, USAID, HSA Coordinator, and Dr. Carlos Cossich, Guatemalan HSA Coordinator. Each USAID consultant to the project worked with a Guatemalan counterpart and all documents were reviewed by the Academy of Sciences, the CNPE, and USAID/Guatemala.

---

1/ Secretaría General del Consejo Nacional de Planificiación Económica, Unidad de Salud, Plan Nacional de Salud 1975-1979, Tomo I y Tomo II.

The project staff and consultants were housed in the offices of the Guatemalan Academy of Medical, Physical and Natural Sciences which, with contracts from both USAID and the GOG, supplied office space as well as logistical support for the U.S. and Guatemalan staff. As an official part of the University of San Carlos, with a charter to provide technical advice to the Government, the Academy was uniquely able to bring together governmental and non-governmental experts to work with the U.S. consultants.

The Assessment was financed by:

| | |
|---|---|
| $110,000 | from USAID/Guatemala |
| 30,000 | from the Government of Guatemala |
| 32,000 | in-kind staff contribution by the Government of Guatemala |
| $172,000 | |

The preliminary results of the Assessment were given broad public exposure in the final months of the assessment process. First, Dr. Estrada presented the preliminary results of the assessment to the National Medical Congress in August 1977 and received an enthusiastic response, although at times his remarks were critical of current program activities. His reception is interpreted as an indication of a willingness by the GOG to consider current problems and possible alternatives: Second, in October 1977, the Central American Confederation of Auxiliary Training Programs held a conference in which the Study of Health-Related Private Voluntary Organizations in Guatemala, a report completed for the Assessment, was a major point of discussion. The study was well received and the Confederation assumed responsibility for implementing the study recommendations with assistance from Catholic Relief Services, OXFAM, and a variety of other private and public funding organizations. Third, other parts of the Assessment have been taken under study by various MOH units, such as the Divisions of Maternal and Child Health and Environmental Sanitation. Thus, in part, one objective of the Assessment may have been achieved, that of the re-evaluation of current program activities and a movement toward more effective alternatives.

The analysis of the Guatemalan health sector is composed of two parts: the Health Sector Assessment itself, and the Annexes, a compilation of fifteen analytical reports written as part of the assessment process and two extensive bibliographies. The Health Sector Assessment, an analytical summary of these reports is presented here; however, only selected copies include the Annex Section because of its extraordinary length. Complete or

individual copies of the Annexes, in Spanish or in English, are available upon request, from the following places:

In Guatemala:

1. USAID/GUATEMALA
   Embassy of the United States
   Avenida Reforma 7-01, Zona 10
   Guatemala City, Guatemala

2. National Economic Planning Council
   (Consejo Nacional de Planificación Económica)
   Health Unit (Unidad de Salud)
   Edificio de Finanzas Públicas
   21 Calle entre 8a y 9a Avenidas, Zona 1
   Guatemala City, Guatemala

3. Academia de Ciencias Médicas, Físicas y Naturales de Guatemala (Academy of Sciences)
   13 Calle 1-25, Zona 1
   Guatemala City, Guatemala

4. Library of the Institute of Nutrition of Central America and Panama (INCAP)
   Carretera Roosevelt, Zona 11
   Guatemala City, Guatemala

5. Dirección General de Salud Pública y Asistencia Social (Public Health Offices)
   Biblioteca de Salud Pública
   9a Avenida 14-65, Zona 1
   Guatemala City, Guatemala

In Washington, D.C.:

1. Office of International Health
   U.S. Department of Health, Education and Welfare
   Washington, D.C.

2. National Library of Medicine
   Washington, D.C.

3. USAID Document Library
   Washington, D.C.

4. Office of Development Resources
   Bureau for Latin America
   Agency for International Development
   Room 2248
   Department of State
   Washington, D.C. 20523

5. Office for Health
Bureau for Technical Services
Room 633 Pomponio Plaza
Agency for International Development
Washington, D.C. 20523

---

Throughout this Assessment the definition of urban and rural areas has been a problem because Guatemala officially defines as urban the capital cities of all departments and municipalities, regardless of their absolute size, and towns larger than 5,000 persons. These communities are more urban than the adjacent small, dispersed villages. Since only 5 towns outside of Guatemala City have populations greater than 20,000, and since many of the municipal and departmental capitals have populations of less than 5,000, when such small urban areas are compared with urban areas of other countries, many of the small Guatemalan urban areas appear more rural than urban. Statistically all official Guatemalan documents, including the 1973 census, use this official definition of urban and rural. When this definition is used in this Assessment it is so noted.

A second definition is used in this Assessment because data is frequently available only on a department-level basis. In this case, the working definition of urban is the Department of Guatemala, and rural is the sum of all the rest of the departments. This approach is considered justified because outside of the Department of Guatemala, only 13 urban areas have populations of greater than 15,000 persons, these areas together account for less than 500,000 persons or less than 10% of the population who lives outside of the Department of Guatemala. Therefore any errors made by using this definition are small.

# HEALTH SECTOR ASSESSMENT OUTLINE

## TABLE OF CONTENTS

Coversheet
Abbreviations Used in Health Sector Assessment
Acknowledgement
Preface

Table of Contents

1. Summary of Findings and Recommendations

2. Background

   2.1 Geographic Description of Guatemala
   2.2 The Economy
   2.3 Ethnological and other Characteristics of the Population
   2.4 Indicators of Health Status
   2.5 Socio-Political Setting for Health

3. Framework of the Guatemala Health Sector Assessment

   3.1 Definition of the Health Sector
   3.2 The Current Health Care System and Its Sub-Systems
      3.2.1 Guatemalan Governmental and Health-Related Voluntary Organizations
         Guatemalan Ministry of Health (MOH)
         Instituto Guatemalteco de Seguridad Social (IGSS)
         Other Major Guatemalan Governmental and Voluntary Health Organizations
      3.2.2 International Health-Related Private Voluntary Organizations
      3.2.3 Private Practitioners and Private Institutions
      3.2.4 USAID/Guatemala
      3.2.5 International Lending Institutions

   3.3 Health Planning in Guatemala
      3.3.1 Organizational Structure for Planning
      3.3.2 Participants in Planning
      3.3.3 Planning: The Process and the Product
      3.3.4 Summary: The Planning Problems in Guatemala

## 4. Analysis and Recommendations

4.1 Extension of Services
- 4.1.1 Administrative Constraints to the Extension of Coverage of Health Services
- 4.1.2 Maternal and Child Health (MCH) Services
- 4.1.3 Demography
- 4.1.4 Family Planning
- 4.1.5 Communicable Disease Control
- 4.1.6 Community Participation
- 4.1.7 Extension of Health Services to Finca Workers
- 4.1.8 Health-Related Private Voluntary Organizations

4.2 Increasing Efficiency in the Health Sector

4.3 Maintenance Services Requirements

4.4 Human Resources

4.5 Nutrition

4.6 Environmental Sanitation
- 4.6.1 Social Science Aspects of Environmental Sanitation
- 4.6.2 Water
- 4.6.3 Excreta
- 4.6.4 Solid Waste
- 4.6.5 Market Sanitation
- 4.6.6 Rabies

4.7 Financing Health Care Services

## 4.A Mission Strategy

4.A.1 Future AID Involvement in the Health Sector

4.A.2 Program Option

## 5. Annexes

5.1 Administrative Constraints to the Extension of Coverage of Health Services
5.2 Maternal and Child Health Services
5.3 Midwife (Comadrona) Study
5.4 Family Planning Bibliography
5.5 Communicable Disease Control
5.6 Community Participation
5.7 Extension of Health Services to Finca Workers
5.8 A Study of Health-Related Private Voluntary Organizations in Guatemala
5.9 Financing the Extension of Coverage
5.10 Efficiency of the Guatemalan Health Sector
5.11 Health Facilities Maintenance
5.12 Human Resources
5.13 Nutritional Evaluation of the Guatemalan Population
5.14 Environmental Sanitation
5.15 Environmental Sanitation: A Study of Attitudes and Practices
5.16 Health Sector Assessment Bibliography

## SECTION 1

## FINDINGS AND RECOMMENDATIONS

### SUMMARY

This summary is intended to highlight certain fundamental aspects of the Assessment that might otherwise be overlooked in the mass of information provided. It is not comprehensive, rather it intends to accomplish the following: 1) define the health problem in Guatemala and summarize the major facts that illustrate its seriousness; 2) identify and describe the major factors that are responsible for the health problem; 3) summarize the most important recommendations and studies needed to improve the situation; 4) summarize the most important financial dynamics; and 5) discuss the role that USAID and other international agencies might play to improve the availability and quality of health care provided to the poor.

1. Definition of the Problem

The main aspects of the health problem in Guatemala include high mortality rates, particularly in the 1 to 5-year age group; a high incidence of infectious and preventable diseases; a greater incidence of disease and higher mortality rates in the rural areas than in the urban areas; substantial malnutrition among the poor concentrated in the rural areas; and high population growth rates. The statistical evidence substantiating these findings is reviewed below.

Guatemala's mortality rates for the general population and for infants are compared with those of fourteen other countries in Table 1-A. Guatemala's infant mortality rate is high, not only in relation to the United States and Western Europe, but also in comparison with many other countries in Latin America. For example,

TABLE 1-A

VITAL STATISTICS IN FIFTEEN SELECTED COUNTRIES

| Country | Year | Birth Rate 1/ | Death Rate 1&3/ | Infant Deaths 2&3/ | Life Expectancy (Men/Women) | |
|---|---|---|---|---|---|---|
| Britain | 1971 | 16.0 | 11.6 | 17.5 | 1968-70 | 72 |
| Costa Rica | 1965-70 | 45.1 | 7.6 | 67.1 | 1962-64 | 63 |
| Dominican Republic | 1965-70 | 48.5 | 14.7 | 50.1 4/ | 1959-61 | 58 |
| Ecuador | 1965-70 | 44.9 | 11.4 | 76.6 4/ | 1961-63 | 52 |
| El Salvador | 1971 | 42.1 | 7.9 | 52.7 | 1960-61 | 58 |
| France | 1971 | 17.2 | 10.8 | 14.4 | 1970 | 72 |
| Germany, West | 1971 | 12.8 | 11.7 | 23.2 | 1966-68 | 71 |
| Guatemala | 1970 | 41.6 | 14.9 | 88.4 | 1963-65 | 50 7/ |
| Honduras | 1965-70 | 49.0 | 17.1 | 36.5 5/ | 1965-70 | 49 |
| Jamaica | 1971 | 34.8 | 7.4 | 26.4 | 1959-61 | 65 |
| Mexico | 1970 | 43.4 | 9.9 | 68.5 | 1965-70 | 62 |
| Nicaragua | 1965-70 | 46.0 | 16.5 | 45.3 5/ | 1965-70 | 50 |
| Paraguay | 1965-70 | 44.6 | 10.8 | 35.6 4/ | 1965-70 | 59 |
| Peru | 1965-70 | 41.8 | 11.1 | 72.5 6/ | 1960-65 | 54 |
| United States | 1971 | 17.3 | 9.3 | 19.2 | 1971 | 71 |

1/ Per 1,000 Population.
2/ Per 1,000 Live births.
3/ Refers to same year as listed in column on left, except when specified.
4/ For 1970.
5/ For 1969.
6/ For 1967.
7/ In 1973, the life expectancy for total population was 52 years. For Ladinos it was 54 years and for the Indian population it was 50 years. Source: Fox & Hughet, Inter American Development Bank, 1976.

SOURCE: United Nations, Statistical Yearbook 1972.

Guatemala's infant mortality rate of 88 per thousand compares with 67 for Costa Rica, 50 for the Dominican Republic, 45 for Nicaragua, 53 for El Salvador, 36 for Paraguay, and 26 for Jamaica.

Analysis of the causes of death (Table 1-B) indicates that well over half the deaths are attributed to infectious and respiratory diseases, amenable to medical treatment, or preventable through improved environmental sanitation measures and immunization. Of all deaths, 22% were caused by diarrhea and intestinal parasites (preventable through improved environmental sanitation), 21% by acute respiratory diseases, and 12% by whooping cough, measles and tuberculosis, diseases which can be controlled through immunization programs. 1/

Health problems are most serious in the rural areas. Mortality rates range from only nine per thousand in the metropolitan area, up to 21.5 per thousand in El Petén, 19 in Totonicapán, and 16 in the Departamentos of El Quiché, Sololá and Alta Verapaz. 2/

Nutritional deficiencies represent a key health problem in Guatemala. Data in the National Five-Year Plan for Health indicate that 81% of the total child population suffered from nutritional deficiencies, with serious deficiencies (Gomez second and third grades) present in nearly a third of the cases (Table 1-C). A recent study jointly undertaken for the Health Sector Assessment by the Institute of Nutrition of Central America and Panama (INCAP) and the National Planning Council 3/ confirms the existence of a serious nutritional problem in the population which results in substantial retarded growth of a high number of children, an abnormally high number of children of low birthweight, an increased susceptibility to infectious diseases, and the highest mortality rates on the continent for infants and children from one to four years of age. It is estimated that the caloric deficit of the poorest half of the population is approximately 40% of the minimum daily requirement. The real consumption of corn, the main source of energy in the diet of Guatemalans, has decreased in the last seven years from 555 grams per day in 1968, to 278 grams per day in 1976. 4/

---

1/ Consejo Nacional de Planificación Económica, Plan Nacional de Salud, 1974, Volume 1, Page 12.

2/ Ibid, Pages 12-13.

3/ Nutritional Evaluation of the Guatemalan Population, August 1977.

4/ Ibid, Summary, Page 1.

TABLE 1-B

TEN MAJOR CAUSES OF DEATH IN 1973:
RATE PER 10,000 POPULATION AND PERCENTAGE DISTRIBUTION

| Causative Diseases | | Per 10,000 Inhabitants | % |
|---|---|---|---|
| 1. Acute Respiratory Diseases | 14,593 | 25.37 | 20.83 |
| 2. Diarrheic Syndrome | 13,063 | 22.71 | 18.65 |
| 3. Syndrome Related to Nutritional Deficiencies | 4,783 | 8.31 | 6.83 |
| 4. Perinatal Mortality | 4,228 | 7.35 | 6.04 |
| 5. Intestinal Parasites | 2,306 | 4.01 | 3.29 |
| 6. Affections of the Respiratory Apparatus | 2,210 | 3.84 | 3.16 |
| 7. Cancer | 1,594 | 2.77 | 2.28 |
| 8. Cardiovascular Diseases | 1,558 | 2.70 | 2.22 |
| 9. Other Causes | 25,710 | 44.86 | 36.70 |

SOURCE: Secretaría General Consejo Nacional de Planificación Económica, Plan Nacional de Salud, 1974, Volume I, Page 12.

TABLE 1-C

NUTRITIONAL SITUATION OF GUATEMALAN CHILDREN IN 1974 1/

| | Number | Percentage |
|---|---|---|
| Total Risk Population (Children Under 5 Years of Age) | 1,106,438 | 100.0 |
| Normal Children | 205,798 | 18.6 |
| Children with Malnutrition | 900,640 | 81.4 |
| First Degree 2/ | 542,154 | 49.0 |
| Second Degree | 293,206 | 26.5 |
| Third Degree | 65,280 | 5.9 |

1/ Population estimated according to 1973 census. Calculations were made on the basis of the Evaluation of the Nutritional Status of the Guatemalan Population, Institute of Nutrition of Central America and Panama, 1965.

2/ Classification by F. Gómez.

SOURCE: Secretaría General del Consejo Nacional de Planificación Económica, Plan Nacional de Salud, 1974, Volume I, Page. 22.

TABLE 1-D

AVERAGE CALORIC AND PROTEIN AVAILABILITY BY INCOME GROUPS
IN RELATION TO MINIMUM REQUIREMENTS
GUATEMALA, 1970

| | Strata According to Income | | | | |
|---|---|---|---|---|---|
| | Low 50% | Medium 30% | High 15% | Very High 5% | Average 100% |
| Total Calories | 1,326.1 | 2,362.1 | 2,918.8 | 4,234.0 | 2,021.3 |
| % of Adequacy | 61 | 109 | 134 | 195 | 93 |
| Total Proteins | 30.7 | 56.9 | 75.5 | 129.7 | 50.3 |
| % of Adequacy | 51 | 95 | 160 | 314 | 91 |
| % Calories from Fat | 13.2 | 14.5 | 17.6 | 25.8 | 15.9 |
| % Calories from Proteins | 9.3 | 9.6 | 10.3 | 12.3 | 10.0 |
| * NDpCA1% | 5.1 | 5.3 | 7.2 | 9.8 | 6.0 |

* Adequate NDpCA1% value 6.3

SOURCE: Analysis of Nutrition Problems of the Population of Guatemala, INCAP-National Economic Planning Council, September 1977, Table No.32.

Another significant problem is the continued high rate of population growth. At 3%, Guatemala's population growth rate is one of the highest in the world. The family planning program has so far reached only 7.4% of women of child-bearing age.

The population problem is an integral part of the overall health problem for three reasons: 1) a significant reduction in the death rate probably will not be possible without improvement in nutritional standards, which is impeded by high birth rates; 2) any reduction in the death rate, unaccompanied by a reduction in the birth rate, would further increase the population explosion and interfere with economic development; and 3) the proper spacing of children has been found to be essential to the welfare of both mothers and children.

2. Major Factors Responsible for Health Problems

The serious health and nutritional problems described above are due to a complex of interrelated causes that are described in detail in the Assessment and are only briefly restated here:

2.1 The seriousness and extent of the malnutrition problem is attributable to economic, educational and cultural factors. The economic factor is of major importance. The data in Table 1-D indicate that the poorest 50% of the Guatemalan population receives only an average of 61% of the minimum daily caloric requirement, and 51% of the protein requirement. Concomitantly, the highest 20% on the income scale receive 134 to 195% of the caloric requirement and 160 to 314% of the protein requirement. While the protein consumption of the lower-income groups could be improved through educational programs leading to the adoption of improved dietary practices, their low per-capita income levels, low level of education, and resistance to change, act as formidable constraints.

2.2 In rural areas, a substantial part of total illness can be attributed to deficiencies in environmental sanitation measures, particularly in water supply, sewerage systems and general sanitation practices. Table 1-E indicates substantial differences in the adequacy of water and sewerage service between Guatemala City, other urban areas, and rural areas. Thus, while 51% of houses in Guatemala City are connected to the municipal water service, the percentage is 38% for other urban areas and only 2% for rural areas. Sewerage connections are 41% for Guatemala City, 14% for other urban areas, and 0 for rural areas, though 17% of the latter have latrines. Service quality is deficient. Water rationing is widespread, even in Guatemala City. Water sources are

TABLE 1-E

ACTUAL WATER SERVICE LEVELS, 1974
(Percentage of Population)

| | House Connections | Other Public Systems | Total Served |
|---|---|---|---|
| Urban | | | |
| Guatemala City | 51% | 37% | 88% |
| Other Urban | 38% | 23% | 61% |
| Sub-total | 44% | 29% | 73% |
| Rural | 2% | 13% | 15% |
| Total | 19% | 19% | 37% |

ACTUAL SEWERAGE AND SANITATION SERVICE LEVELS, 1974
(Percentage of Population)

| | Sewerage Connections | Latrines, etc. | Total Served |
|---|---|---|---|
| Urban | | | |
| Guatemala City | 11% | 7% | 18% |
| Other Urban | 11% | - 1/ | 11% |
| Sub-total | 26% | 3% | 29% |
| Rural | - | 17% 2/ | 17% |
| Total | 10% | 12% | 22% |

1/ Not known.
2/ Estimated.

SOURCE: International Bank of Reconstruction and Development (IBRD), Water Supply and Sewerage Sector Study, 1976. Appendix 1.

frequently polluted, and locally-operated urban and rural systems lack the necessary funds and personnel to maintain and improve service. 1/

2.3 By all accounts, the rural sector has been neglected in terms of the Ministry of Health's (MOH) investment in health infrastructure, assignment of personnel, and allocation of drugs, medical supplies and equipment. In 1973, Guatemala City with 14% of the country's population accounted for 40% of the MOH physicians, 43% of its dentists, 41% of its graduate nurses and 45% of its laboratory and X-ray technicians. 2/ Forty percent of the total Ministry of Health budget for 1977 was spent on personnel and facilities located in the Capital City.

While there unquestionably is an overconcentration of medical facilities and professional personnel in the Capital City, the case is not made here that the MOH funds assigned to the Capital should be cut back, only that the need for additional funds is most urgent in other areas as well.

A major deficiency in the health outreach system is in maternal and child health care services where the greatest benefit in terms of number of lives saved can be obtained for a dollar of investment in health care. Deficiencies in the maternal and child health care outreach system in the rural areas, along with underinvestment in environmental and preventive health measures are major factors behind the country's high infant mortality rate.

2.4 A basic difficulty with regard to improving health services in the rural areas is the reluctance of the rural population to use the MOH ambulatory health services, a reluctance noted in a number of reports. Contributory factors apparently include poor experience with rural health facilities such as absence of appropriate drugs, inability of MOH staff to speak local indigenous dialects, long waiting periods, and unavailability of trained personnel, fear of hospitalization, superstition and lack of faith in general in modern medicine. A study is needed which pinpoints these causes more specifically.

---

1/ International Bank of Reconstruction and Development (IBRD) Report, Water Supply and Sewerage Sector Study, November 5, 1976, Page 1.

2/ Source: Consejo Nacional de Planificación Económica, Plan Nacional de Salud, 1974, Volume 1, Table 21.

2.5 Cultural and educational factors are very important in this bicultural country and impinge upon the health problem in a number of ways, including resistance to the use of latrines and to the introduction of other sanitary practices; resistance to participation in immunization campaigns; refusal to seek timely medical assistance; and reluctance to alter dietary practices to improve nutrition. Finally, cultural factors partially explain the slow progress achieved by the family planning program.

2.6 The planning and administration procedures of the Ministry of Health contain a number of faults, the most important of which are:

2.6.1 Funds placed at the disposal of the MOH fall far short of requirements, a factor which impinges mainly on the provision of services to areas outside the Capital City.

2.6.2 A shortfall of funds allocated for current (operating) expenditures in relation to investment in equipment and new construction has resulted in some inadequately staffed facilities, and many hospitals have remained understaffed for some time.

2.6.3 Lack of provision for proper maintenance of equipment has resulted in substantial deterioration and losses of costly facilities. The deficiency of trained maintenance manpower or maintenance services, other than in Guatemala City, provides for only the most basic level of maintenance and repair of equipment in rural areas.

2.6.4 A basic imbalance exists with respect to the availability of personnel, which includes not only an overconcentration of doctors and dentists in the Capital, but also a serious shortage of registered nurses, rural health technicians and laboratory technicians in relation to the supply of doctors. As a result, doctors are made to perform tasks that could be performed by health auxiliaries, which results in high cost and unavailability of services to the rural population.

2.6.5 A serious shortage of needed drugs and supplies both at MOH health posts and hospitals outside the metropolitan area, which has discouraged the rural population from taking advantage of MOH health services. Given the fixed costs of the MOH, the poor utilization of rural facilities

## TABLE 1-F

Total Public Expenditures on the Aggregate Health Sector, 1971-76 with Projections for 1977-79

(In Thousands of Quetzales)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1983 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 58,047 | 46,417 | 58,164 | 62,732 | 70,555 | 96,301 | 119,916 1/ - 134,216 2/ | 127,281 1/ - 149,081 2/ | 130,228 1/ - 167,828 2/ | |
| Operating Expenditures | 35,292 | 39,514 | 42,004 | 46,984 | 58,121 | 81,401 | 93,016 1/ | 111,281 1/ | 123,428 1/ | |
| Investment Expenditures | 2,755 | 6,903 | 16,160 | 15,848 | 12,434 | 14,900 | 26,900 1/ - 41,200 2/ | 16,000 1/ - 37,800 2/ | 6,800 1/ - 44,400 2/ | 2,300 1/ - 50,400 2/ |
| By Central Government | 21,695 | 28,155 | 36,982 | 39,725 | 43,110 | 47,297 | | | | |
| By Autonomous Institutions | 16,352 | 18,262 | 21,182 | 23,008 | 27,445 | 49,004 | | | | |
| Year to Year Increase in Operating Expenditures | | 6,222 | 2,490 | 4,880 | 11,237 | 23,280 | 11,530 1/ | 18,266 1/ | 12,147 1/ | |
| Annual Increase in Operating Expenditures as % of Investment in Prior year 4/) | | 153 | 36 | 30 | 71 | 187 | | | | |

1/ Without reconstruction; 2/ With reconstruction

3/ Projected by writer on basis of regression analysis (increase in operating expenditures regressed as a function of prior year "normal" investment expenditures).

4/ It is assumed that investment of any year will entail additional operating expenditures only in the following year.

Source: For data through 1976 and projections of investments over 1977-79, Infrestructure Department of the National Planning Council. Projections of operating expenditures for 1977-79 by author.

further drives up the cost per-patient-contact.

2.6.6 There are weak linkages among health posts, health centers and hospitals. As a result the referral system does not work properly.

3. Financial Summary

A comprehensive review of current and planned health sector expenditures lead to the following observations:

3.1 Total public expenditures on the aggregate health sector increased substantially between 1971 and 1976, from $38 million in 1971 to $96 million in 1976, or at an average annual compound rate of 21% (Table 1-F).

3.2 Both operating and investment funds allocated to the public health sector have undergone substantial increases over this period. Operating expenditures increased from $35 million in 1971 to $81 million in 1976, while investment spending increased from $2.8 million to $15 million (Table 1-F).

3.3 The ratio of the annual increase in operating expenditures over prior year investments was low between 1972 and 1974, but rose substantially in 1975 and again in 1976 (Table 1-F).

3.4 Projections of investment expenditures for the sector indicate very substantial increases over 1976-1980 owing to earthquake reconstruction (see Table 1-F). The increase between 1976 and 1978, for example, is 154%. These increases will call for further substantial increases in operating expenditures.

3.5 The operating budget of the Ministry of Health also shows sharp increases over the period 1972 to 1977, up from $22 million to $42 million, reflecting an average annual compound growth rate of 13.7%. Further substantial increases are provided in the Planning Council's National Development Plan. The Ministry's operating budget is scheduled to rise from $42 million in 1977 to $62 million in 1978, $77 million in 1979 and $96 million in 1980. The fact that these increases have been planned indicates an awareness of the system requirements but it is most unlikely that these hefty increases will materialize. The gap between the planned system requirements and the authorized budget could be as high as $35 million or 33% by 1980 (see Table 1-G).

TABLE 1-G

Ministry of Health: Projections of Operating Budget over 1978-80
Historical Growth Rate Versus Amounts Planned
(In Millions of Quetzales)

| | 1977 (Budget) | 1978 Historical Trend | 1978 Plan | 1979 Historical Trend | 1979 Plan | 1980 Historical Trend | 1980 Plan |
|---|---|---|---|---|---|---|---|
| Total Operating Budget | 42.3 | 47.9 | 62.2 | 54.3 | 77.5 | 61.5 | 96.1 |
| Personal Services | 21.3 | 23.8 | 30.0 | 26.7 | 37.3 | 29.8 | 46.4 |
| Other Services | 1.4 | 1.7 | 1.7 | 2.0 | 2.2 | 2.3 | 2.7 |
| Materials & Supplies | 9.7 | 10.8 | 14.8 | 12.0 | 18.4 | 13.4 | 22.8 |
| Machinery & Equipment | 1.0 | 1.2 | 1.9 | 1.5 | 2.4 | 1.9 | 3.0 |
| Construction & Improvements (by contract) | -- | .2 | .1 | .3 | .2 | .5 | .2 |
| Transfers | 7.4 | 8.7 | 11.6 | 10.2 | 14.5 | 11.9 | 18.0 |
| Others | 1.5 | 1.5 | 2.0 | 1.6 | 2.5 | 1.7 | 3.1 |

Source: Health Planning Unit, Annex Tables A-1 and A-2.

3.6 The proportions of the MOH operating budget spent on training, drug purchases and administration have remained approximately constant from 1973 to 1977. The figures confirm the Assessment's finding that the allocation of funds for training and drug purchases has been low.

3.7 A relatively high proportion of the Ministry's personnel budget is spent on doctors (39%) and on auxiliary nurses (31%) while the proportion allocated to other kinds of medical and health personnel is low. The projections in the National Health Plan, however, reveal that the National Economic Planning Council and the Ministry of Health realize the deficiencies in the current MOH staffing pattern. Sharp increases for training and salaries were programmed for professional nurses, sanitation inspectors and rural health technicians.

3.8 On the basis of a crude classification of measures into "curative" and "preventive", it was determined that between 1973 and 1977 the operating expenditures of the Ministry favored curative measures by a ratio of approximately two to one. There are no indications that this imbalance will be corrected under the development plan. In fact, implementation of the plan would further raise the ratio to 2.2 to 1.

3.9 The data confirm the finding that a substantial proportion of the Ministry's operating expenditures are for the Department of Guatemala (40%) although it must be borne in mind that some of the more serious cases are referred to hospitals in the Capital City.

3.10 The investment plan shows continued emphasis on the category of hospital construction and reconstruction which is scheduled to absorb 45% of total planned investment over 1977-1980. Rural health facilities account for 21% of planned investment and rural aqueducts and water supply projects for 14%.

3.11 The investment budget, while highly ambitious, is likely to be sufficiently financed due to a substantial amount of committed foreign assistance. The Government of Guatemala has committed itself to provide the counterpart requirements specified in various loan agreements. On the other hand, serious questions arise with respect to the Government of Guatemala's capacity to implement an investment/reconstruction program of the scale envisioned. In all likelihood, the investment program will stretch out over a much longer period.

3.12 With regard to the adequacy of the budget in relation to requirements, considerable more data are needed before an overall generalization can be made. However, it appears that investment targets fall short in relation to requirements in the areas of manpower training, the acquisition of drugs and environmental sanitation (potable water and sewerage) outside the Capital City.

3.13 The Government of Guatemala has demonstrated its capability to prepare a national health plan. However, weaknesses are obvious in its ability to prepare a well-integrated plan that interrelates objectives, requirements and available resources; defines priorities and specific policies; and includes the preparation of projects acceptable to the international financial institutions. The Five-Year National Health Plan 1974-1979 should be revised, developed more thoroughly and be continuously updated. The Health Planning Council of the MOH needs to be increased at both the national and departmental levels. Institutions involved in health sector planning should be consolidated and strengthened; and much greater use should be made of plan recommendations at the decision-making level.

## 4. Major Recommendations for Improvements of Health in Guatemala

While recommendations are included in the Assessment, the following are the most basic policy recommendations.

### Recommendation 4.1: Family Planning

Recommendation 4.1.1: THE GOVERNMENT OF GUATEMALA SHOULD ESTABLISH A NATIONAL POPULATION POLICY.

Discussion

The government has on two separate occasions made efforts, without success, to formulate an official population policy. This policy formation must be totally a Guatemalan effort; however, until such a policy exists, it is very difficult for foreign donors to assist the GOG in family planning efforts. A policy should be articulated as soon as possible. This recommendation is based upon the analysis that appears in Chapter 4.1.4 of this Assessment.

Recommendation 4.1.2: UNTIL THE GOVERNMENT OF GUATEMALA INITIATES AN ACTIVE AND EFFECTIVE FAMILY PLANNING PROGRAM, DONORS SHOULD CONTINUE INTERIM SUPPORT OF THE EFFORTS OF APROFAM TO DELIVER FAMILY PLANNING SERVICES THROUGH PUBLIC HEALTH FACILITIES TO THOSE GUATEMALANS WHO WANT THEM.

Recommendation 4.1.3: ALTERNATIVES TO CLINIC-BASED DELIVERY SYSTEMS FOR FAMILY PLANNING SERVICES AND EDUCATION SHOULD BE EXPLORED AND TESTED.

Discussion

Innovative approaches for consideration include commercial distribution through village stores, and household and village distribution through cooperatives, campesino organizations, and other rural infrastructures. Experience in other countries, such as Colombia, Costa Rica and Panama, indicate that when such alternatives are utilized, the availability of contraceptives is increased in a relatively inexpensive manner. This recommendation is based upon the analysis that appears in Chapter 4.1.4 of this Assessment.

Recommendation 4.2: Nutrition

Recommendation 4.2.1: THE GOVERNMENT OF GUATEMALA SHOULD FORMULATE A NATIONAL FOOD AND NUTRITION POLICY AND DESIGN A PLAN OF ACTION INCLUDING INTERVENTIONS FROM AGRICULTURE, HEALTH, EDUCATION AND OTHER SECTORS, FOR ITS IMPLEMENTATION. RESOURCES SHOULD BE EARMARKED IN THE NATIONAL BUDGET FOR CARRYING OUT THIS COORDINATED, MULTISECTORAL NUTRITION PROGRAM AS PART OF THE GOG's NATIONAL DEVELOPMENT PLAN FOR 1975-1979 AND INCORPORATED INTO THE NEW PLAN FOR 1980-1984.

Discussion

Guatemala has one of the highest malnutrition rates in the Western Hemisphere. Between 29% and 38% of all children under five suffer from second or third degree malnutrition and approximately 48% of the children under five endure first degree malnutrition (Gomez classification). In addition the national per capita corn consumption, which is the principal source for calories, has declined in the last eight years from 555 grams daily in 1968, to 278 grams daily in 1976. (Dirección General de Estadística). In addition, bean consumption, the principal source for protein, has remained at the same level during the last eight years, i.e., approximately 28 grams per person per day. Despite increasing aggregate production of basic grains, the country faces a serious problem of malnutrition which has not improved in the last ten years and in fact, given the country's high birth rate, the actual number of malnourished children is increasing each year. This recommendation is based upon the analysis that appears in Chapter 4.5 and Annex 5.13 of this Assessment.

Recommendation 4.2.2: THE MINISTRY OF HEALTH SHOULD ADDRESS PROGRAMMATICALLY THE ASSOCIATION BETWEEN MALNUTRITION AND DIARRHEAL DISEASE IN CHILDREN, WHICH IS GUATEMALA'S PRIMARY HEALTH PROBLEM. THE PROGRAM SHOULD INCLUDE THE DESIGN OF A NUTRITION SURVEILLANCE SYSTEM WITHIN THE MOH WHICH WILL CONTINUOUSLY MONITOR THE LEVEL OF MALNUTRITION AT THE MUNICIPAL LEVEL. THE SURVEILLANCE SHOULD BE SYSTEM-DESIGNED TO SUPPORT NATIONAL FOOD AND NUTRITION PROGRAMS.

Discussion

The primary cause for medical attention, as well as hospitalization, in children under five is diarrhea and other enteric diseases. They are the primary cause of death in infants. Recent studies (INCAP) have shown that the prevalence of infecticus and diarrheal diseases were very high during pregnancy, resulting in low neonatal birth weights, predisposing infants to subsequent risk of illness. This is reflected in Guatemala's infant mortality rate of 81.1/1000 and mortality in 1 to 4 years old of 28/1000 in 1975. Since the MOH is charged with maternal and child care for the nation, it should address this major concern throughout its health system, particularly in the rural areas. Health care personnel, professional and paramedical personnel, should be trained to recognize and ameliorate the problems of malnutrition, high fertility, and other causes of neonatal, child and maternal morbidity and mortality.

Recommendation 4.3.1: Health Services

Recommendation A: TO ACHIEVE A MORE EQUITABLY DISTRIBUTION AND MORE EFFECTIVELY PROVIDE PUBLIC SECTOR CURATIVE HEALTH SERVICES, THE GOVERNMENT SHOULD CORRECT THE BUDGETARY IMBALANCE THAT FAVOR URBAN AT THE EXPENSE OF RURAL AREAS AND HOSPITAL INSTEAD OF AMBULATORY CARE CENTERS. THIS IMBALANCE IS AN INDICATOR AS WELL AS A CAUSE OF LACK OF ACCESS TO SERVICES IN RURAL AREAS. TO CORRECT THIS IMBALANCE THE GOG SHOULD ALLOCATE A LARGER BUDGETARY PROPORTION TO RURAL AMBULATORY CARE SERVICES.

Discussion

The 1977 MOH operating budget reveals that 51% of the total went to the Department of Guatemala, with only 16% of the national population. Thus, per capita expenditures within the capital department came to Q.7.10; while for the rest of the country the figure was Q.2.40 per capita. This represents a ratio of nearly three-to-one in favor of the Department of Guatemala. The majority of expenditures, in both urban and rural areas, were for hospital-based care. Given this imbalance, and given the morbidity and mortality rates for the country, future budgets should

correct this imbalance by allocating a higher proportion to delivery of rural ambulatory care facilities which can treat the majority of illness experienced by the population.

Recommendation 4.3.2: IN ORDER TO IMPACT MORE EFFECTIVELY ON THE HEALTH OF THE NATION, THE GOVERNMENT SHOULD MOVE TOWARDS CORRECTING THE IMBALANCE BETWEEN BUDGET ALLOCATIONS FOR CURATIVE AND PREVENTIVE SERVICES BY ALLOCATING MORE OF THE BUDGET TO PREVENTATIVE SERVICES.

Discussion

Defining 95% of hospital services and 70% of rural health services as curative, and 5% of hospital services, 30% of rural health services, and all water projects as preventive, the public investment budget for 1977 on shows a ratio of over two quetzales budgeted for curative investments to each quetzal invested for preventive services. The operating budget shows a ratio of over three and one-half to one in favor of curative services. Given the epidemiological profile of leading causes of mortality and morbidity, preventive health services are far more effective and less expensive than curative services in upgrading the general level of national health. The GOG should bring its investment and operating budget allocations for the curative and preventive services into equilibrium.

Recommendation 4.3.3: TO MAXIMIZE RURAL COVERAGE AT MINIMUM COST, HUMAN RESOURCES PLANNING AND BUDGETING SHOULD BE BASED ON THE CONCEPT OF MAXIMUM USE OF MEDICAL AUXILIARIES AND MINIMUM USE OF PHYSICIANS AND OTHER HIGH COST PERSONNEL.

Discussion

When funds are limited and likely to continue so, it is necessary to make decisions about the most appropriate health care delivery model and the numbers and kinds of high-level, high-cost professionals who should be employed vis-a-vis the numbers of low-cost, lower-level auxiliaries. The experience of many developing countries indicates that maximum use of auxiliaries and minimum use of physicians and other high cost health personnel, is the least expensive, most effective method of providing rural health care. (This recommendation is based upon the analysis that appears in Chapter 4.4 and Annex 5.12 of this Assessment).

Recommendation 4.3.4: RURAL HEALTH PROGRAMS OF THE MOH AND OTHER RURAL HEALTH PROGRAMS SHOULD HAVE MAXIMUM PARTICIPATION OF LOCAL COMMUNITIES IN LOCAL HEALTH PROGRAM ACTIVITIES, MECHANISMS SHOULD BE DEVELOPED FOR IDENTIFYING COMMUNITY HEALTH PROBLEMS AND PRIOR-

ITIES, AND ORGANIZING COMMUNITIES TO ADDRESS THESE PROBLEMS.

Discussion

There is extensive evidence from the health sector and other sectors that programs tend to more effectively serve a community when the community is involved in both the initial planning and subsequent implementation of a program. Involving the community is one of the best methods of determining the response to community felt needs and expressed wants. (This recommendation is based upon the analysis that appears in Chapter 4.1.6 and Annex 5.6 of this Assessment).

Recommendation 4.3.5: THE GOG SHOULD MAKE THE EXTENSION OF HEALTH SERVICES TO FINCAS A HIGH PRIORITY AND ENACT LEGISLATION TO ENSURE ADEQUATE HEALTH SERVICES TO WORKERS. SUCH SERVICE SHOULD EMPHASIZE PREVENTIVE HEALTH EDUCATION IN NUTRITION AND SANITATION, AND CONSTRUCTION OF LATRINES AND PROVISION OF POTABLE WATER SUPPLIES.

Discussion

Finca workers and the dependents that are with them in the fincas number approximately 2,000,000 of which 1,500,000 migrate from the Western highland to work on the plantations of the south coast for about 90 days per year. Given that in 1977 some 5 - million persons live outside of the department of Guatemala, the population at risk on the fincas is 40% of the total rural population. These workers and their dependents have the poorest average levels of nutrition; have the least contact with the national immunization campaign; and have virtually no control over their environment because they live in company towns in company housing. The great distance and poor transportation from the fincas to MOH services prohibits the use of MOH services. Currently legislation requires only a first aid station to be located on the finca which is totally inadequate given the prevalence of diarrhea, parasites, infectious disease, and pesticide poisoning. (This recommendation is based upon the analysis that appears in Chapter 4.1.7 Annex 5.7 of this Assessment.)

Recommendation 4.3.6: THE HEALTH PLANNING CAPACITY OF THE MOH MUST BE STRENGTHENED AT BOTH THE NATIONAL AND AREA LEVEL.

Discussion

At the present time the national health planning activities are distributed between several offices without any one of them coordinating their efforts with the office of the Minister. As a result, very little effective national health planning is done within the MOH.

The Health Unit of the National Economic Planning Council has done national planning for the MOH, but should move toward sector wide planning.

Given that the MOH continues to further decentralize program responsibilities to the area chiefs, there must be: (1) delegation of appropriate authority to manage the decentralized programs; (2) additional resources to manage the programs, and (3) training in planning for welding all the resources into a comprehensive, department wide health services program. (This recommendation is based upon the analysis that appears in Chapter 4.1.1, 4.2, and 4.7, and Annexes 5.1, 5.10 of this Assessment).

Recommendation 4.3.7: BY DECISION AT THE HIGHEST LEVEL, THE TWO MAJOR PUBLIC PROGRAMS OF HEALTH SERVICES, MINISTRY OF HEALTH (MOH) AND INSTITUTO GUATEMALTECO DE SEGURIDAD SOCIAL (IGSS) SHOULD BE INTEGRATED AS SOON AS POSSIBLE.

Discussion

There is a trend for integration in several Latin American countries. Some coordinated activities exist in Guatemala; contractual joint use of one hospital has been a long established practice of the two agencies in Guatemala. Approaches for integration differ from country to country. In Chile there was complete integration of the two systems in 1952 after their separate operation for 30 years. In Costa Rica integration has recently been achieved by assigning all personal health service facilities to Social Security, while the Health Ministry does environmental sanitation, health education, planning, regulating, etc. Panama has used the strategy of integrating, on a province by province basis. Colombia is now actively moving toward integration. If a GOG decision is made, Guatemala should surely design its own strategy. Such action would not only produce savings in the large current administrative costs of both agencies, but it would facilitate efficient use of scarce resources throughout both sub-systems of health care. (This recommendation is based on the analysis that appears in Chapter 4.2 and Annex 5.10 of this Assessment).

Recommendation 4.3.8: THE GOVERNMENT OF GUATEMALA SHOULD ESTABLISH A NATIONAL HEALTH FACILITIES AND EQUIPMENT MAINTENANCE AND ENGINEERING PROGRAM BASED ON THE PRINCIPLE THAT ALL FACILITIES AND EQUIPMENT ARE TO BE MAINTAINED IN A MANNER THAT WILL MAXIMIZE THEIR USEFUL LIFE AND THAT MAINTENANCE SERVICE AND LOGISTICAL SUPPORT SHALL BE DEPLOYED SO AS TO PROVIDE TIMELY RESPONSE TO REQUESTS FOR ASSISTANCE.

Discussion

Analysis of the status of Ministry of Health (MOH) facility maintenance in Guatemala indicates that the health sector will continue to operate with growing inefficiency and will need to replace prematurely its entire equipment infrastructure if the present system of inadequate maintenance continues. A substantial percentage of the equipment in MOH health facilities is either not being used; being improperly utilized and/or maintained; or has reached a stage of complete dispair. In almost every hospital or health center include, new equipment purchased by the Government of Guatemala (GOG); financed by either international loans or from the GOG's own programs, has not been installed. In some cases equipment has arrived damaged and is unusable because it is not repaired locally.

The lack of maitenance affects all areas of the health service support base and dramatically reduces the quantity and quality of care provided by the system. (This recommendation is based upon the analysis that appears in Chapter 4.3 and Annex 5.11 of this Assessment).

Recommendation 4.3.9: ACHIEVEMENT OF IMPROVEMENTS PLANNED BY THE MOH WILL IN THE LONG RUN REQUIRE ENLARGEMENT OF THE PUBLIC SECTOR HEALTH SERVICES, SPECIFICALLY IN THE AREA OF TRAINING AND DRUGS. BASED UPON HISTORICAL TRENDS A SHORTFALL OF FINANCIAL REQUIREMENTS OVER RESOURCES FOR THE ENTIRE MOH SYSTEM COULD RUN AS HIGH AS $35 MILLION BY 1980.

Discussion

The trend of the MOH to build hospitals will require substantial increases in the operating budgets. In addition, the current inadequacies of the operating budget are reflected in low staff to bedratios which results in unnecessarily long average lengths of stay per patient. To both adequately staff the new facilities and upgrade the current facilities will require substantial increases in the operating budget. Given the historical trend of MOH operating budget, there will be a substantial gap between needed resources an available resources by 1980. (This recommendation is based upon the analysis that appears in Chapters 4.2 and 4.7 plus Annex 5.10 of this Assessment).

Recommendation 4.3.10: THE NATIONAL HEALTH PLAN, 1974-1979, SHOULD BE REVISED TO BE MORE COMPREHENSIVE. SPECIFICALLY IT SHOULD INCLUDE: (1) ALL MAJOR PUBLIC AND PRIVATE INSTITUTIONS PROVIDING HEALTH CARE; (2) ESTIMATES OF FINANCIAL RESOURCES REQUIRED TO ATTAIN GOALS; (3) PROJECTION OF RESOURCES AVAILABLE AND THEIR SOURCE; (4) DEFINITION OF PRIORITIES; AND (5) SPECIFIC POLICIES AND PROJECTS TO MEET PLANNED GOALS.

Discussion

While the National Health Plan 74-79 has proven to be a valuable document, it needs to be expanded to include all agencies and organizations in the health sector and mechanisms for implementing recommendations. (This recommendation is based upon the analysis that appears in Chapters 4.1.1 and 4.7 plus Annex 5.1 of this Assessment).

Recommendation 4: THE FOLLOWING STUDIES SHOULD BE CONDUCTED:

4.1 Studies and pilot programs should be carried out in order to identify how best to incorporate the appropriate elements of the traditional (indigenous) medical system into the care provided by the public sector health system, especially in rural areas.

4.2 The system of procurement, storing and distribution of drugs from the National Drug Warehouse to the health facilities throughout the country should be evaluated to include an assessment of the constraints to the flow of the drugs to the communities.

4.3 A comprehensive study is needed of the MOH information system, including statistical needs, costs, and alternative methods of providing and processing needed information.

4.4 Sample household surveys should be designed and tested in rural area to determine extent of health problems, health behavior, utilization, and expenditure patterns.

4.5 A review should be conducted of employment conditions of all health workers in the public sector, and should include reevaluation of the appropriateness of existing job descriptions and the extent to which they realistically reflect the tasks performed. Pay scales, classifications, benefits, working hours, vacations, sick leave, as well as opportunities for career advancement and additional training, should be revised in terms of the existing economic situation and the demand of the new patterns of health care delivery.

4.6 A separate but related study should be made for improving the system of health manpower supervision and evaluation at all levels in the public health sector and should include a forecast of personnel needs, costs and methodologies for continuous evaluation.

4.7 A study should be undertaken to design a national maintenance program which would specify its functional responsibilities and the administrative and organizational configuration which best meets the Government of Guatemala's short and long term maintenance needs and financial capacity.

4.8 A national anthropometric survey by region and by income group should be undertaken immediately as a basis for direction of GOG intervention.

4.9 Phase II of the Nutrition Assessment, i.e., the multisectoral aspects of the analysis outside the health sector, should be completed as originally planned to provide the basis for the national food and nutrition plan of action.

## 5. Possible Roles of International Organizations

One objective of this assessment was to identify possible roles for International Organizations in Guatemala. The following is intended to discribe those roles as viewed by USAID/G.

The many recommendations to improve the health of Guatemalans can be classified into two categories: those that involve institutional and policy changes designed to increase the efficiency in the utilization of human resources and other resources and which do not call for new investments, additional staff or other measures entailing a significant increase in resource requirements. The former are found throughout the Assessment and are the more numerous. Recommendations that entail increases in the budget include suggestions for additional investment in rural water and sanitation facilities and housing and expanded outlays for manpower training and for the acquisition of drugs and supplies.

A number of improvements can be accomplished within the constraint of the current budget. However, the Assessment has clearly established that current resources assigned by the GOG to health are inadequate. Much more can be accomplished if the total level of resources available to the health sector can be increased as part of a comprehensive program of institutional and policy reform, than if the Government of Guatemala had to conduct such reforms within the constraint of existing budgetary limitations. In some cases international organizations can play a useful supporting role, although they also pose some dilemmas.

The international agencies are best equipped to provide long-term loans to finance the construction of facilities and the acquisition of equipment; while their policies and bureaucratic procedures make it difficult, if not impossible, to finance operational outlays such as personnel costs, drug supplies, or maintenance budgets. Yet the Health Sector Assessment shows that the Government of Guatemala's greatest financial weakness lies in its operating budget. A major problem experienced in recent years is

that new construction has outrun the government's ability to adequately staff, maintain and supply the new facilities. Thus, great care should be taken to avoid exacerbating the problem by making loans to finance the development of facilities which call for additional operating expenditures, in the absence of firm indications that the Government of Guatemala is both willing and able to raise the additional fund to cover these operating expenses on a continuing basis.

Projects that qualify for international agency financing must, therefore, meet the following criteria: a) reflect a priority need identified by this Assessment or other objective studies or national plans; b) avoid a significant increase in Government of Guatemala operating expenditures; c) be of a type that the international agencies can finance, given their policy objectives and the bureaucratic constraints under which they operate.

The following are not intended to be a comprehensive list but rather an illustrative list of activities that appear to meet the above criteria:

5.1 Provision of Technical Assistance: The Government of Guatemala requires technical assistance in the following areas where serious weaknesses have been identified in planning, organization and staffing:

5.1.1 Health Sector Planning. The Health Planning Unit of the National Economic Planning Council (CNPE) has been responsible for the development of the health sector portion of the five-year development plan; it reviews all new projects of the Ministry of Health (MOH) and the Guatemalan Social Security Institute (IGSS) and participates in sector budget reviews. Its current staff is very limited. Thus, it has not been in a position to define priorities, develop new projects, devise imaginative solutions to major problems, or to periodically update the five-year plan. 1/ The Health Unit requires additional staff and high-level, expert advice. As a condition for such strengthening, its role and influence in the decision-making process should be significantly enhanced.

5.1.2 Maintenance. Shortcomings in the health sector maintenance system have reached alarming proportions. The Assessment notes that "a substantial percentage of the equipment in MOH health facilities is either not

---

1/ The Five-Year National Health Plan was developed in 1974; it has not been updated.

being used; being improperly utilized, and/or maintained; or has reached the stage of complete disrepair. In almost every hospital or health center included in the study, new equipment purchased by the Government of Guatemala, USAID/Guatemala, or other international assistance programs has not been installed... Maintenance support of most laboratories is virtually nonexistent. 1/ Present annual MOH expenditures for maintenance support are estimated at only $500,000 compared with an estimated requirement of $10 to $15 million.

The international agencies cannot provide the maintenance funds required. However, they can provide technical assistance to enable the Government of Guatemala to establish a control and distribution system for tools, equipment and supplies, and to design a comprehensive training program to provide the personnel needed to properly maintain the health facilities.

5.1.3 Procurement. In the area of procurement of drugs, supplies and medical equipment, bureaucratic processes are highly complex, involve the interaction of many separate offices and result in considerable delays. This not only impedes the procurement and distribution of essential drugs and other medical supplies, but also causes considerable delay in essential maintenance and repair operations. A careful study of procurement procedures along with recommendations for a complete overhaul of the current system is urgently required.

## 5.2 Development of Human Resources

The Assessment emphasizes the need to alter the personnel mix in the health sector, particularly in the area of placing greater reliance on rural health technicians and professional nurses in the rural areas, with corresponding lesser emphasis on doctors. The need for additional skilled personnel has also been established in the areas of: trained midwives and midwife supervisory personnel; workers in family planning, nutrition and sanitation, and laboratory and other medical technicians.

---

1/ HSA Chapter 4.3. Maintenance Service Requirements.

The international agencies cannot supplement the operating budget of the Ministry of Health to cover the salaries of the additional personnel required. However, they can provide loans to cover some of the training costs. The provision of international assistance for training purposes must, of course, be conditioned on the guarantee that the funds to pay the salaries of the newly trained personnel, as well as the supplies they will require to function effectively, will be forthcoming and continued.

5.3 New Investment

New investment projects must be approached with caution, first, to avoid generating substantial additional demands for scarce operating funds, and second, to avoid the current emphasis on the curative approach which relies so heavily on expanding major facilities.

However, the Assessment has identified some important investment needs that lie outside the curative area, do not call for substantial additional operating staff and respond to priority needs. One such need is in the areas of water and sanitation facility development.

With respect to investment requirements in potable water and sewerage, the figures speak for themselves: in 1974 the public water service coverage was 73% for the urban sector and only 15% for the rural population. If house connections are considered, the discrepancies are much greater: 51% for Guatemala City, 38% in other urban areas and only 2% for the rural sector. With respect to the coverage of public sewerage services, the proportion of population benefited are as follows: 48% for Guatemala City; 14% for other urban areas; and 0 for rural areas, with only 17% having sanitary latrines.

A Water Supply and Sewerage Sector Study conducted by the International Bank of Reconstruction and Development (IBRD) in 1976 points out that the 1980 service goals of the National Economic Planning Council would necessitate a total investment of - $177 million, at 1976 prices, during the 1975-1980 period, and adds that "the sector has been unable to qualify for a sufficient level of foreign financing because of the limited capacity to prepare and implement projects". 1/ It recommends that the government attempt to attract greater external assistance from multilateral and bilateral lenders, though "such external assistance may not be forthcoming unless project preparation improves

---

1/ IBRD, Water Supply and Sewerage Sector Study, 1976, Summary Recommendations, Pages i and ii.

and external financing is broadened and more actively sought out". 1/ Thus, the international agencies may consider providing some technical assistance to develop projects and conduct the feasibility studies, as well as assist with the financing of the projects themselves.

---

1/ IBRD, Water Supply and Sewerage Sector Study, 1976, Summary and Recommendations, Pages i and ii.

# SECTION 2

# BACKGROUND

## 2.1 Geographic Description of Guatemala

Guatemala is situated between Mexico, Honduras and El Salvador. It covers 108,889 square kilometers, an area approximately the size of the state of Tennessee. The country can be divided into seven geographic areas, each of which encompasses a number of proximate departments with similar environmental conditions.

Region I - Western Highlands, which consists of the Departments of Chimaltenango, Solola, Totonicapan, San Marcos, El Quiche, Huehuetenango and Quezaltenango. At an elevation ranging from 1,500 to 8,202 feet above sea level, the year-round daytime climate of this area is temperate with low relative humidity. Rainfall ranges from 39 to 236 inches per year, generally over a six-month period (mid-May through mid-November), with a little longer rainy season at higher altitudes. The region is dominated by contemporary Mayan communities. Agriculture is almost totally restricted to small family farming plots.

Region II - South Coast, which consists of the Departments of Escuintla, Santa Rosa, Suchitepequez and Retalhuleu. Extending from the Pacific Coast to the 5,000-foot level on the western side of the western range of volcanoes, this area is the center of the commercial agriculture industry which produces the majority of exported agricultural commodities, e.g., coffee, tea, cardamom, cotton, and sugar. With rainfall ranging from 60 to 195 inches per year, this area is lush and tropical with very high temperatures and relative humidity. Few traditional Mayan communities are found here; the Indians in this area generally are migrant workers or live permanently on the farms.

Region III - Eastern Desert, which consists of the Departments of El Progreso, Jutiapa, Jalapa, Chiquimula and Zacapa. In

the rainshadow of both the western range of volcanoes and the central mountains, this area is a very hot, dry desert similar to the deserts of northern Mexico and the southwestern United States. The majority of the area receives less than 20 inches of rain per year. Elevations range from 164 to 5,000 feet. Commercial agriculture surrounds the Motagua River and its tributaries. The few Indians who live in this area either are migrant laborers or relatively new residents.

Region IV - Capital Metro Area, which consists of the Departments of Guatemala and Sacatepequez. This area is dominated by Guatemala City. Rainfall varies between 39 and 78 inches per year and elevations range from 3,280 to 6,561 feet. The communities surrounding the Capital are functionally a part of it, in that people commute to the Capital on a daily basis to work or sell goods.

Region V - Central Highlands, which consists of the Departments of Alta and Baja Verapaz. This area is alpine, with a long rainy season due to its high elevation of 1,600 to 6,500 feet. Precipitation varies between 39 and 156 inches per year. Temperatures are mild and the humidity is low. Many traditional Indian groups engaged in subsistence farming live in the area.

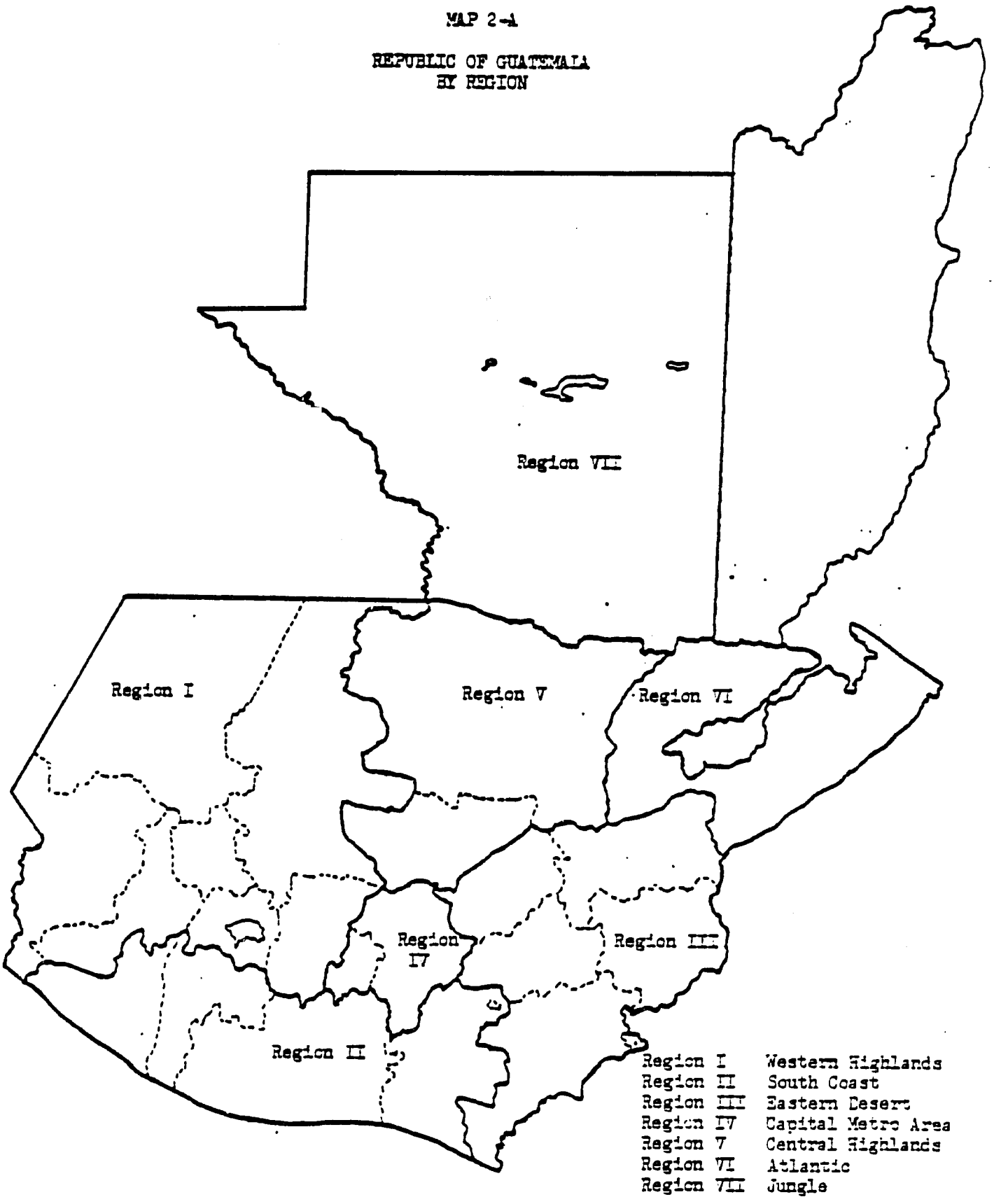
Region VI - Atlantic, which consists only of the Department of Izabal. Because it is on the Atlantic Coast, the climate is hot, humid and tropical, and 78 to 157 inches of rain fall per year. Lake Izabal, centrally located, covers approximately 20% of the total area of the Department. Elevations range from 328 to 4,900 feet. A small number of traditional Indian groups live in the area. Commercial activity is dominated by Puerto Barrios, the Atlantic Port of Entry, and El Estor, a recently developed nickel-mining area.

Region VII - Jungle, which consists only of the Department of El Peten. Although this department accounts for approximately 33% of the total land area in Guatemala, it is home for less than 1% of the country's population. The climate is very hot, humid and tropical. Rainfall averages 78 inches per year. Elevations range from 330 to 3,300 feet. Agriculture is almost totally subsistence. Limited commercial activity includes the harvesting of lumber, chicle, and rubber, using migrant labor from neighboring departments.

Map 2-A depicts the seven regions of Guatemala.

MAP 2-A

REPUBLIC OF GUATEMALA
BY REGION



## 2.2 The Economy 1/

Guatemala has developed a five-billion dollar economy. Unlike many underdeveloped countries, Guatemala has been able to offset petroleum costs by the sale of coffee, cotton, sugar and other export crops. Additionally, although devastating in human terms, the earthquake of February 1976 did not depress the economy as a whole; tourism, the only seriously affected sector, has fully recovered. Spurred primarily by favorable prices for export commodities (coffee, cotton, sugar, bananas and beef), the growth of the Gross Domestic Product (GDP) has been vigorous and almost uninterrupted, averaging slightly over six percent in real terms for the past ten years. Currently, the rate of growth is estimated to be 8.4% in current dollars. Continued growth at a healthy rate is anticipated for the future, led by the export sector. Nickel exports are scheduled to start in the second half of 1977, and are projected to reach an annual level of $60 million within a few years. Continued increases in tourism revenues and agro-industrial exports are expected, and it is quite possible that the recently-discovered oil will exist in commercial quantities.

However, for the foreseeable future Guatemala's economy will continue to be based primarily upon agriculture. Large fincas 2/ will continue as the major source of production and exports while small farms will continue to provide the staples consumed by the bulk of the population.

## 2.3 Ethnological and Other General Characteristics of the Population 3/

The population of Guatemala is basically composed of two distinct ethnic groups: Ladinos, which comprise 56% of the population, and Indians, which comprise 44%. Although small population groups of Europeans, Asians and Blacks exist, their numbers are not statistically significant for the purpose of this Health Sector Assessment.

---

1/ This information is taken from the draft of a paper entitled: "Economic Analysis" by Douglas Martin, Acting Capital Development Officer, USAID/Guatemala, July 1977.

2/ The Spanish word finca refers to plantation-type farms on which the employees live, without reference to acreage. However, for the purposes of this Assessment, the term is restricted to large fincas of 110 acres or more.

3/ This information is taken from the draft of a paper entitled: "Social Analysis of Small Farmer Marketing" by William Kaschak, Latin America/Development Resources, USAID, Washington, May 1977.

In general, the Ladino classification is applied to those people who have adopted a western life style or have European ancestry. Spanish is either their first or principal language, although they may, but usually do not, speak an Indian language. They wear western-style clothing and have a preference for the mass-produced consumer products of modern technology. Economically, their main source of income is earned from commerce or service enterprises, or as professionals. Although many own agricultural land, few are practicing farmers, they prefer to rent land to the Indians who farm it. Finally, they possess a set of cultural norms and values which is distinct from that of Indians. More prominent practices and attitudes include the nuclear family as the basic social unit, a class consciousness and quest for upward mobility, a determination of social status on the basis of lineage and source of wealth, a secular brand of Roman Catholicism in which the overt practice of religion is much more expected of women than of men, and an ideology which emphasizes the welfare of the individual over that of the group.

The Indian classification is applied to descendants of the ancient Maya who have not adopted western practices and values. They are native speakers of one of the numerous indigenous languages, although many of the men and some of the women are conversant in Spanish. They continue to wear native styles of dress, but women adhere more strictly to this practice than men. Their main source of income is derived from agriculture as either day laborers, subsistence farmers or medium scale market-oriented growers, although many supplement farming income with a craft specialty. In general, no formal class structure exists within the Indian population, although graduations of wealth do exist. Capital gain is desired but it does not elicit status and rank. Rather, social rank is a product of age and prestige, the latter acquired through contributions of both time and money to the cofradía (religious brotherhood) system. A principal variation in the Indian population concerns the leadership structure. In some areas, in the Northwest in particular, the cofradía system does not exist, or performs only a minor ceremonial function. Leadership at the village level is by ad-hoc committees, organized for accomplishing a specific task, such as road building, school and church construction, and irrigation projects. The committees disband when the project is completed, when interest wanes, or the work on it ceases. Concomitantly, the idea of placing the good of the community above that of the individual is not strictly adhered to since household units tend to operate independently of one another and indigenous ceremonial beliefs and practices are much less followed.

The total population of the country in 1977 is 6.6 million, 1/ of which approximately 1,422,400 live in the Capital Metro Area. Seventy-five percent (75%) of the rural population is concentrated in three areas: the Western Highlands with 42.4%, the Central Highlands with 10.8%, and the South Coast with 21.8%. Only minor changes are anticipated in this rural population distribution through the year 2000.

Most of the Indian population lives in the rural highlands while the Ladino population lives generally in urban areas throughout the country.

The Indian population experiences a high rate (82%) of illiteracy while the illiteracy rate of the Ladino population is lower at 63%. 2/

Income distribution in Guatemala is extremely skewed with little hard data to describe the distribution in detail. However, one indicator of the range of income distribution is that low-income rural families have annual incomes of $400 or less, while in Guatemala City the median family income is $2,200. 3/

The estimated crude death rate for the country in 1975 was 12.0 and the birth rate was 41.4 with a natural increase rate of 2.94%. 4/ The population doubled between 1950 and 1975, and it is expected to double again by the year 2000. 5/ Table 2-A depicts comparative population data for Guatemala and the other Central American countries.

---

1/ Estimates of total population in Guatemala vary substantially because of disagreements surrounding the Fiscal Year 1973 census. The World Bank used a total of 5.2 million, IMF (International Financial Statistics) uses 5.8 million. The FY 1977 USAID Congressional Presentation used 5.9 (6.0) as of 1975. The estimate used above was derived using the methodology developed by U.N. demographer Krishna Roy, and is explained in detail in the USAID/G Population Project Paper approved January 27, 1976.

2/ International Bank of Reconstruction and Development (The World Bank), Draft Summary of Statistics for Guatemala, 1977.

3/ USAID/Guatemala Program Office. Amounts expressed in current dollars.

4/ Demographic Section, PHA/POP/USAID/Washington.

5/ CELADE, Centro Latino Americano de Demografía.

TABLE 2-A

COMPARATIVE DEMOGRAPHIC DATA FOR CENTRAL AMERICA

July 1975

| Country | Estimated Population (In Thousands) | Births per 1,000 Population Number | Deaths per 1,000 Population Number | Rate of National Increase % | Time to Double Population Years | Population Under Age 15 % | Life Expectancy at Birth Years | Urban Population % | GNP per Capita Dollars |
|---|---|---|---|---|---|---|---|---|---|
| United States | 213,631 | 15 | 9 | 0.6 | 116 | 27 | 71 | 74 | 6,210 |
| Costa Rica | 1,967 | 28 | 5 | 2.3 | 30 | 42 | 69 | 41 | 780 |
| El Salvador | 4,099 | 40 | 8 | 3.2 | 22 | 46 | 58 | 39 | 340 |
| Guatemala (1973) | 5,728 | 43 | 15 | 2.8 | 25 | 45 | 52[1] | 35 | 406[2] |
| Honduras | 2,747 | 49 | 14 | 3.5 | 20 | 47 | 54 | 28 | 290 |
| Nicaragua | 2,153 | 48 | 14 | 3.4 | 20 | 48 | 53 | 49 | 500 |
| Panama (Excluding Canal Zone) | 1,668 | 31 | 5 | 2.6 | 27 | 43 | 66 | 49 | 900 |

1 Indian and Ladino populations combined.

2 Amount is given in 1972 prices; Source USAID/G Program Office.

Source: World Population Growth and Response, 1976, p. 266, Population Reference Bureau, Washington, D.C.

## 2.4 Indicators of Health Status

The following tables present insights into the health of the Guatemalan population.

TABLE 2-B

LIFE EXPECTANCY BY ETHNOGRAPHY

| | | Combined |
|---|---|---|
| Indian | 49.9 | 51.9 |
| Ladino | 54.3 | |

Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

The combined life expectancy of 51.9 years is the lowest in all of Central America, with the Indian population experiencing a life expectancy of four years less than Ladinos.

The mortality rate (deaths per 1,000 population) in Guatemala is one of the highest rates in Latin America. Infant mortality, a major contributor to the high mortality rate, was reported at 79 deaths per 1,000 live births in 1973. 1/ The maternal mortality rate was 1.7 per 1,000 population in 1973. 2/

Table 2-C depicts the 1974 projection of the 1965 evaluation of malnutrition levels according to the Gomez classification of malnourishment. These figures indicate that over 81% of the at-risk-population is considered malnourished with over 30% falling into the more severe levels of malnourishment.

---

1/ The Institute of Nutrition of Central America and Panama (INCAP) estimates that actual infant mortality may be as high as 100/1000. Deaths are poorly registered in rural areas and infant deaths are believed to be the most poorly reported.

2/ Due to poor registration of deaths, maternal death rates are probably higher than officially indicated.

TABLE 2-C

LEVELS OF 1975 RURAL MALNUTRITION

| | Number | % |
|---|---|---|
| Population-at-Risk (children under 5 years) | 1,106,438 | 100.0 |
| Normal Population | 165,966 | 15.0 |
| Malnourished Population | 940,472 | 85.0 |
| First Degree | 518,919 | 46.9 |
| Second Degree | 365,125 | 33.0 |
| Third Degree | 56,428 | 5.1 |

Source: Institute of Nutrition of Central America and Panama.

The levels of immunization for DPT, measles, polio and BCG are represented in Table 2-D.

TABLE 2-D

VACCINE DISTRIBUTION AND PERCENTAGE COVERAGE
(Numbers and Per Cent of At-Risk-Population)
1976

| Cycle | DPT | Measles | Polio | BCG |
|---|---|---|---|---|
| 1 | 278,089 (69.5%) | 191,567 (58.4%) | 271,370 (67.9%) | |
| 2 | 123,170 (57.4%) | | 121,649 (56.7%) | 103,756 (48.4%) |

Source: Annex 5.5: Communicable Disease Control

Although data are not currently available, it is generally recognized that vaccine teams have not reached into the less accessible villages of the highlands or privately-owned fincas.

The leading causes of morbidity and mortality are presented in Table 2-E and Table 2-F.

TABLE 2-E

LEADING CAUSES OF MORBIDITY

1. Enteritis and other diarrheal diseases
2. Acute respiratory infections
3. Avitaminosis and other nutritional deficiencies
4. Skin infections
5. Anemia

Source: Plan Nacional de Desarrollo, 1974.

TABLE 2-F

LEADING CAUSES OF MORTALITY
NUMBERS AND RATES PER 10,000
WITH PERCENTAGE OF TOTAL DEATHS (1973) 1/

| | | Number | Rate per 10,000 Inhabitants | Percentage of all Deaths |
|---|---|---|---|---|
| 1. | Acute Respiratory Diseases and Pneumonia | 14,593 | 25.4 | 20.8% |
| 2. | Diarrhea Syndromes | 13,063 | 22.7 | 18.6 |
| 3. | Nutritional Deficiencies | 4,783 | 8.3 | 6.8 |
| 4. | Diseases of the Puerperium | 4,228 | 7.4 | 6.0 |
| 5. | Intestinal Parasitism | 2,306 | 4.0 | 3.3 |
| | | 38,973 | 67.8 | 55.5% |

Source: Unidad de Planificación y Estadística, 1973.

1/ Statistics based upon medically certified deaths, which represent 20% of all deaths.

## 2.5 Socio-Political Setting for Health

Health care services, as all other social activities, are influenced by governmental structure and the political process. An understanding of at least the profile of this structure and process in Guatemala is essential to understanding how and why health sector institutions and people function as they do. This chapter briefly describes or discusses the formal organization of the government, as well as of major groups, and the ideas influencing the decisions affecting health.

Formal Organizational Structures. Guatemala is officially governed by the Constitution of 1965, which provides for a republican government of three branches. Legislative power is vested in a unicameral Congress of directly-elected deputies. The executive power is vested in the Presidency which is strong by design. Guatemala is a unitary rather than federal state, thus all governmental authority resides with the national, central government.

In addition to the central government, twenty-two department-level governments exist which are headed by a governor appointed by the President of the country. Each department (see Map 2-B) is completely divided into municipalities. A total of 326 municipalities exists in Guatemala, each headed by an elected mayor.

This structure, along with the Spanish heritage of a strong central authority, is reflected in the centralized administrative structure within which all health programs operate.

The public sector is responsible for a number of activities related to health education and welfare which, along with the general role of the government in promoting development, contribute to the large public bureaucracy.

The main public institutions in the health sector are the Ministry of Public Health and Social Assistance (MCH) and the Guatemalan Social Security Institute (IGSS), whose functions are described in Chapter 3.2 of this Assessment.

Decision-Making Process. Formal provisions for exercising power in Guatemala only partially explain the process by which resources are allocated. It is also necessary to identify the major groups that operate within and without the formal structures to determine why decisions are made, or not made.

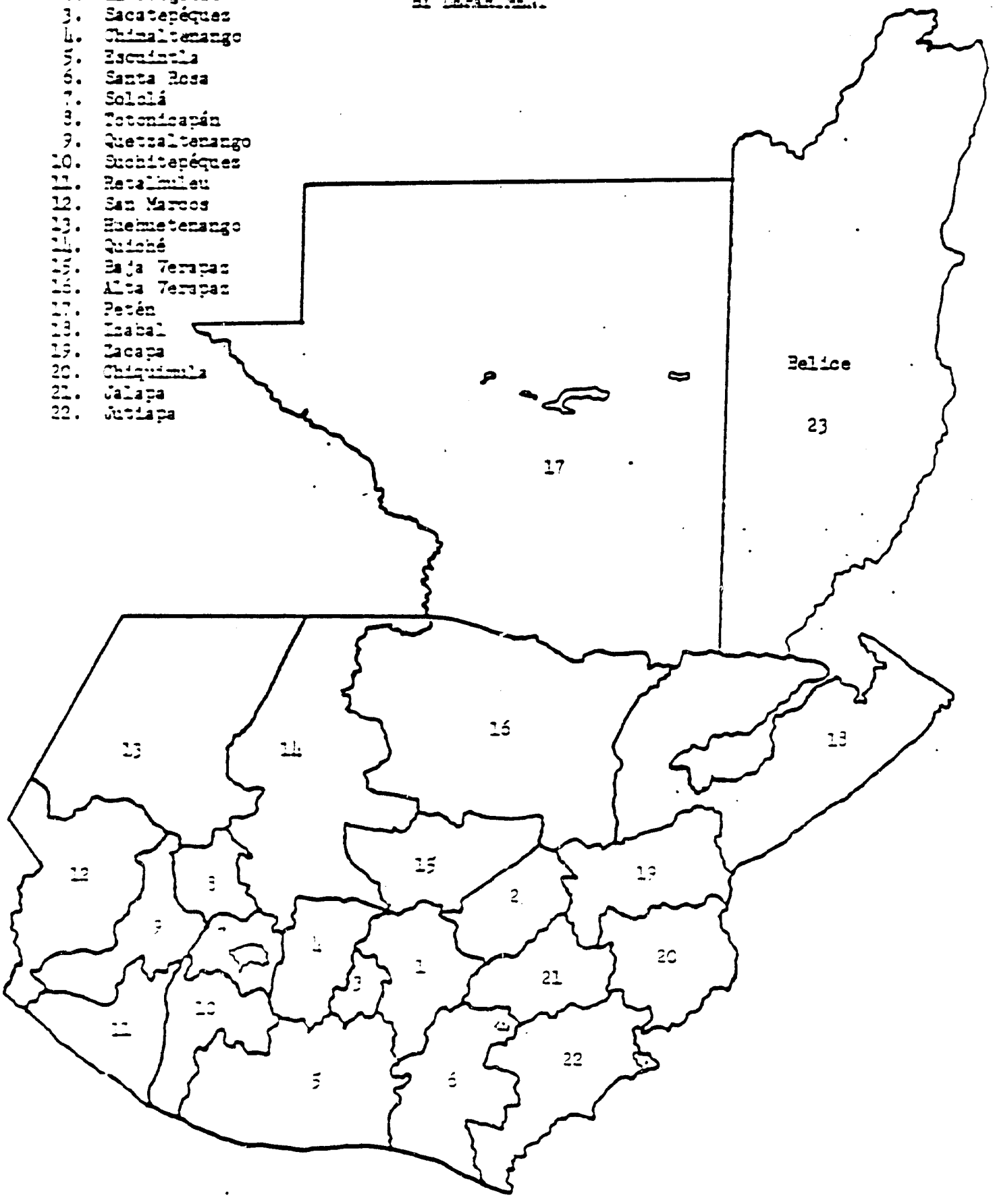
Paternalism and personalism, two complementary leadership styles with strong historical traditions in Latin American politics, also exist in Guatemala. Paternalism, when combined with a strong presidency and centralized power, means people look to the top,

MAP 2-8

REPUBLIC OF GUATEMALA
BY DEPARTMENT

**DEPARTMENTS**

1. Guatemala
2. El Progreso
3. Sacatepéquez
4. Chimaltenango
5. Escuintla
6. Santa Rosa
7. Sololá
8. Totonicapán
9. Quetzaltenango
10. Suchitepéquez
11. Retalhuleu
12. San Marcos
13. Huehuetenango
14. Quiché
15. Baja Verapaz
16. Alta Verapaz
17. Petén
18. Izabal
19. Zacapa
20. Chiquimula
21. Jalapa
22. Jutiapa



often to the President himself, for solutions to problems. Non-delegation of authority or responsibility to the lower echelons make this practice even more likely. An example of its manifestation in the health sector might be the sending of personal delegations from isolated rural towns to explain to the President himself their need for a well, a health post, or a doctor.

Personalism, the role of strong charismatic leaders, normally overshadows institutional political groups, such as parties or interest groups, and in so doing feeds back into and reinforces paternalism.

Both styles of leadership are characteristic of power centers outside the normal political institution. In Guatemala, as in most Latin American countries, a substantial amount of resources and real influence over public resource allocation is concentrated in a small, well-educated elite who are the prime movers in the military, banking, political and land-ownership sectors. To understand this control over resources, one has but to observe the pattern of land ownership.

According to the Plan for Agricultural Development 1975-1979, developed by the National Economic Planning Council:

1. 312,800 of the smallest farms are on lots totaling 1,424,250 acres and average 4.55 acres per farm. A disproportionate number of these small farms are less than two acres; their products are consumed locally.

2. 900 of the largest farms cover a total of 2,617,250 acres and average 2,908 acres per farm. Products from these farms are almost totally exported.

Pressure Groups. Individual personalities are clearly of primary importance in the decision-making process in Guatemala, but in the health sector so, too, are a number of groups.

In addition to the formally constituted political/governmental groups, local mayors and private professional groups normally enter political discussions when their interests are at stake. However, given the role of personalism, centralization, military prominence and general low levels of citizen participation, few such organized groups are active in multiple-policy areas in Guatemalan politics.

Groups which make relatively frequent efforts to affect health decisions are the Medical Faculty of the University of San Carlos and the College of Guatemalan Physicians and Surgeons. A notable example of their role appears in their strong opposition during 1974 to establishing a new category of health auxiliary, the Rural

Health Technician (TSR). Their opposition to the program was based on the over-supply of doctors in urban areas. Both groups fought MOH and CNPF attempts to develop the program, and only strong political pressure from rural mayors enabled the program to be authorized by Congress. 1/

Another example is the pressure put on the MOH Family Planning Program by various members of the San Carlos Medical Faculty, which has retarded the development of a national family planning policy.

In consideration of alternative programs to be pursued by the GOG, the socio-political realities within which these decisions must be made are just as much or more of a constraint as their technical and economic feasibility. The consequences of these socio-political limitations are that:

1. The development of effective department-level infrastructures to administer a decentralized program will require an unprecedented delegation of resource allocation control to the Health Area Chiefs before decentralization can be effectively administered.

2. The capacity of the Ministry of Health to make and sustain decisions must improve before national policies can be effectively and equitably administered.

Understanding these constraints is essential if they are to be dealt with in a manageable way when future health sector programs are planned or when current health sector problems are analyzed.

---

1/ An unpublished case study of this political decision was undertaken by the Instituto Centro Americano de Administración de Empresas (INCAE).

# SECTION 3

## FRAMEWORK OF THE GUATEMALA HEALTH SECTOR ASSESSMENT

### 3.1 Definition of the Health Sector

The services embraced by the health sector constitute a broad area and their in-depth analysis presents both conceptual and empirical problems. The cure or the prevention of many illnesses can be effected through changes in diet, potable water, shelter, sanitation, clothing, and working conditions as much as, or perhaps more than, through specific medical interventions. In addition to environmental factors, the well-being of the individual, family, community and society is affected by public and private institutions, cultural beliefs, knowledge, and habits. The operational definition of the health sector must capture this broad set of influences.

The National Health Plan of Guatemala defines the health sector as:

> "the organic complex of public entities which act in fulfillment of a constitutional mandate, and other complementary or supporting institutions whose purposes and objectives are the development, care and maintenance of bio-physical, mental and social health, individually as well as collectively, in its dimensions of promotion, prevention, treatment and rehabilitation". 1/

This definition illustrates the breadth of concern, but overstresses the institutional base of the health sector. The roles of

---

1/ Secretaría General del Consejo Nacional de Planificación Económica, Plan Nacional de Salud, Tomo I, 1975, page 73.

environmental and socio-cultural variables which influence health and health services are also important. These factors influence both the sector institutions concerned with health and the population to whom health services are directed.

The Guatemala Health Sector Assessment takes a broad conceptual view of health, including the variables of environment, nutritional status, and socio-cultural influences which impact on the consumers of health services, the public agencies which provide the services, and the institutions which train health manpower.

In order to define a concrete scope of work within which to conduct a manageable and relevant analysis, USAID/G and the Government of Guatemala (GOG) jointly explored in July 1976 mutual priority areas of concern for future programming in the health sector. The five health-sector priority, or policy, areas in the GOG National Health Plan for 1975-1979 are compatible with priority interests and legal mandates of USAID programs. This does not mean, however, that each recommendation made in the Assessment falls within an area which either the GOG or USAID/G is willing and able to support.

The five priority policy areas around which the Assessment has been organized and conducted are:

1. Extension of Coverage of Health Services. This refers to the extension of existing services in both quantity and quality, and the establishment of basic health services for those persons currently not covered by public health services. Special effort will be made to reach the most vulnerable groups, i.e., children between 0 and 5 years of age, and mothers. Therefore, Chapter 4.1 of the Assessment emphasizes maternal and child health, family planning and communicable disease control, as well as reaching the unserved population through programs conducted by health-related private voluntary organizations and finca health programs.

2. Improving the Efficiency of the Existing System. To economically extend coverage as envisioned in the goals and policies expressed in the 1975-1979 Plan for Health, existing facilities and equipment must be more efficiently used and the cost of financing the additional coverage greatly reduced. Chapter 4.2 of the Assessment discusses and analyzes the principal obstacles to improved efficiency, the constraints to improved out-patient and in-patient productivity, institutional coordination, and maintenance/support services. Additionally, Chapter 4.3 and Chapter 4.4 discuss increased efficiency through improved health facility maintenance programs and the improved use of human resources.

3. Human Resources Development. The planning of human resources should be directed toward taking advantage of the existing physical infrastructure and toward coverage of the health needs of the population. Thus, in Chapter 4.4, analysis is directed at the GOG human resources policy which calls for strengthening health services by addressing the scarcity of personnel, their inadequate distribution and their low productivity. This human resource policy assumes that the task of providing adequate health care services to the rural population requires emphasis on the development of auxiliary personnel rather than on greater numbers of physicians.

4. Nutrition. The nutrition component of the GOG Five-Year Plan for Health is designed to improve the nutritional status for the entire population, but especially for those groups most-at-risk, i.e., mothers, and children between 0 and 5 years of age. This policy is intended to include all government actions which contribute to production, marketing, availability and biological utilization of food as they concern the most needy and malnourished sectors of the population. Since questions of food supply and demand, as well as the biological utilization of food must be addressed, the GOG recognizes the need for a multi-sector approach to this policy area. However, Chapter 4.5 principally describes and analyzes the nutritional problem from a health-sector vantage point: health indicators of nutritional status, such as morbidity and mortality data; analysis of MOH nutritional services; and demographic influences on nutritional status. The completed GOG Food and Nutrition Policy will contain program recommendations and is expected to be formulated after the 1974 Nutrition Policy Document of the National Economic Planning Council (CNPE) is updated. This task is currently being performed by the GOG Intersectoral Commission on Nutrition, and the Food and Nutrition Policy is anticipated no later than June 1978. The GOG is considering an additional analysis, the Phase II Nutrition Assessment, to further refine the data base before designing specific nutrition interventions.

5. Environmental Health. Improvement in the quality of the environment, with emphasis on improved rural water supplies and sanitation, is the fifth GOG health policy priority. A positive correlation is assumed between improved health status and the quality of sanitation and the quality and quantity of the water supply. Given this assumed correlation, the synergism between infection and malnutrition can also be addressed through improved sanitation and water supplies, particularly in the rural areas, where the least coverage exists and where the causes of morbidity and mortality are most often associated with poor sanitation and poor water supplies.

These five policy areas are by no means isolated from each other. Some of the more obvious inter-relationships have been briefly noted, such as extanding coverage through improved efficiency, and the dependence of improved nutritional status on improved sanitation. The recommendations which result from this Assessment have been considered in terms of interactions across program lines, as well as in terms of political and socio-cultural feasibility.

## 3.2 The Current Health Care System and Its Sub-Systems

The Guatemalan health care system has developed from historical origins along several paths. After thirty years of development, the current distribution of resources and services is the result, not of a rational plan, but of a response to various social pressures. The health care delivery system which exists in Guatemala consists of three major sub-systems, defined with respect to their orientation of services and sources of financing:

1. Guatemalan Governmental and Health-Related Voluntary Organizations. This sub-system provides public care and includes the Guatemala Ministry of Health (MOH), the Guatemala Social Security Institute (IGSS), and Guatemalan-financed health-related private voluntary organizations such as the Red Cross, Volunteer Firemen, and the Social Welfare Council.

2. International Health-Related Private Voluntary Organizations (HPVOs). This sub-system includes approximately 115 religious and non-religious groups which provide some form of health care to low-income rural residents and who receive all or most of their financial support from outside Guatemala.

3. Private Practitioners and Private Institutions. This sub-system encompasses health practitioners trained in both traditional folk healing, as well as those trained in modern medical techniques, and private institutions or businesses that provide health care to their employees.

Programs to improve the public capacity to provide health care have been financed by USAID and a variety of international lending institutions, whose activities are also described in detail in this chapter.

### 3.2.1 Guatemalan Governmental and Health-Related Voluntary Organizations

The Ministry of Public Health and Social Assistance (MOH). The services provided in the Ministry of Health facilities are both preventive and therapeutic and are furnished through a network of health posts, health centers and hospitals.

Established in 1944, and reorganized in 1969, this Ministry has gradually expanded its resources and programs throughout Guatemala. Its program is strongest in Guatemala City, but since 1970 attention has been given to increasing facilities in, and services to, the rural areas. Figures 3.2.1-A and 3.2.1-B graphically display the development of facilities in the urban and rural areas. Since 1970 the growth rate of health facilities in the urban area has kept pace with the population growth rate. In rural areas, however, no facilities existed until 1968 and although the projected number of health facilities for 1980 is approximately the same for both the urban and rural areas, the number of people in the rural areas is projected to be twice that of the urban area.

The administrative direction of the MOH program is highly centralized in the national headquarters. Some years ago, the nation was divided into eight health regions, each of which contained two to four departments; however, these regional offices have been abandoned. Now, the twenty-two political departments of the country have been divided into 24 health areas (twenty departments are co-terminus with the health area, two departments are divided into two health areas each). Each health area has a Health Area Chief who reports directly to the Director General of Public Health. While only a few of the Health Area Chiefs have had formal public health training, they are an excellent source of leadership for future decentralized programs.

Theoretically the Health Area Chief is responsible for all MOH activities in his area, both preventive and curative, except for certain "vertical programs" directed from the national headquarters. This concentration of responsibility in the office of the Health Area Chief is part of an aggressive decentralization program. However, the decentralization of responsibilities is preceding the decentralization of authority for making resource allocation decisions. Before substantial decentralization can proceed, the Health Area Chiefs will have to be delegated the authority to expend the resources allocated for the health areas.

Currently the major vertical programs are tuberculosis, malaria control and, to some extent, the National Immunization Program. The MOH intends to decentralize these programs as well.

FIGURE 3.2.1-A

GROWTH IN THE NUMBER OF MINISTRY OF HEALTH FACILITIES AND POPULATION IN URBAN AREAS 1/ OF GUATEMALA

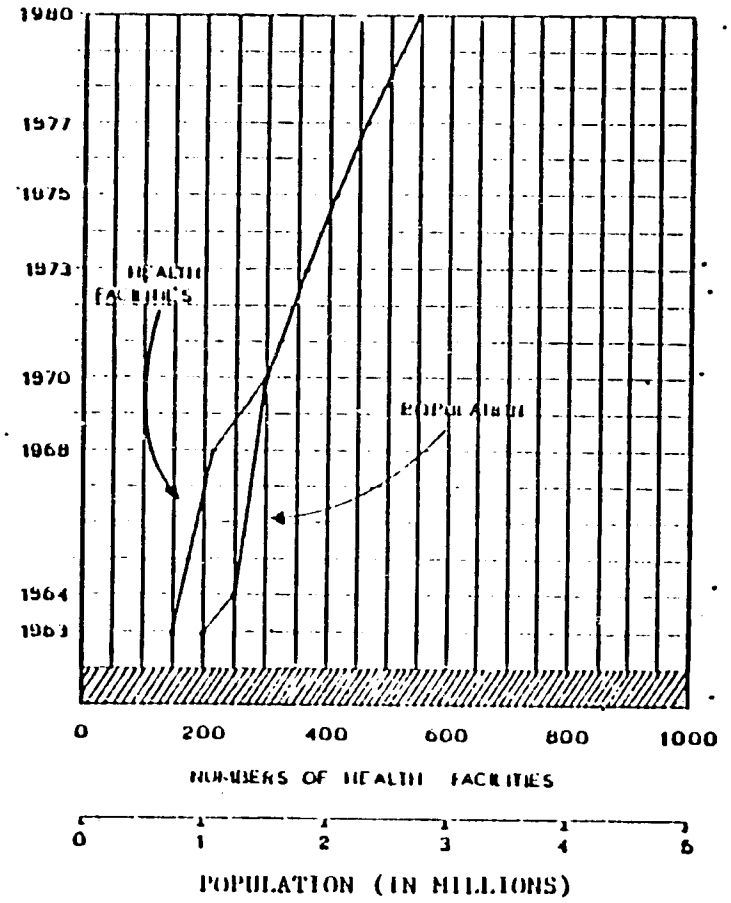
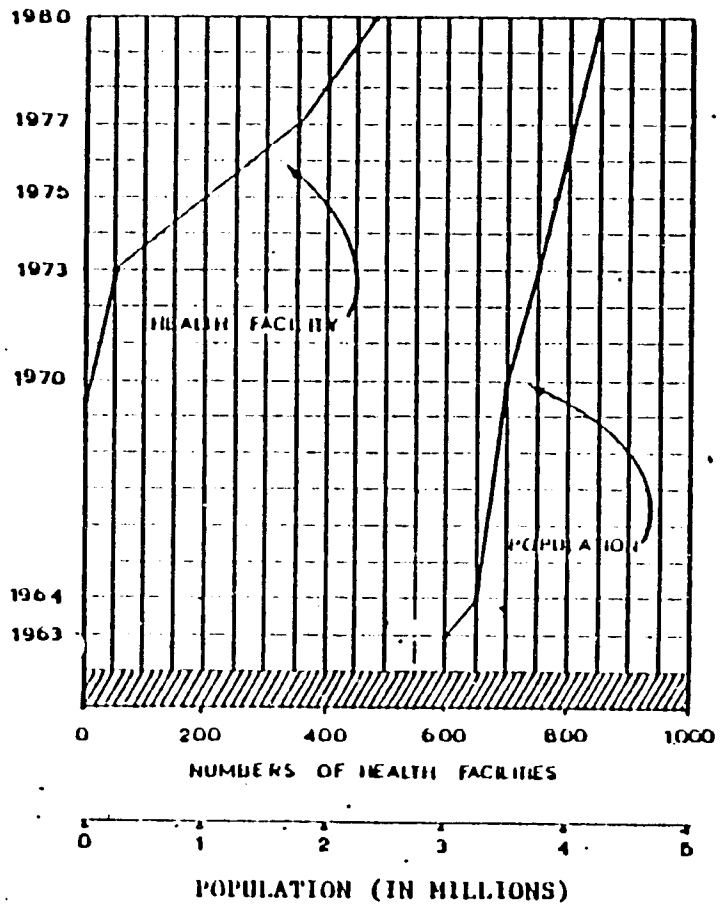



FIGURE 3.2.1-B

GROWTH IN THE NUMBER OF MINISTRY OF HEALTH FACILITIES AND POPULATION IN URBAN AREAS 1/ OF GUATEMALA




1/ Urban and Rural as used in the Guatemalan Census, 1973.

Source: USAID/Guatemala, Public Health Division, 1977

Most MOH services are provided through ambulatory care and in-patient facilities. The current inventory of MOH facilities includes:

| | |
|---|---|
| health posts | 470 |
| health centers | 159 |
| hospitals | 37 |

Health posts are located in rural municipalities with populations between 200 and 2,000 persons, and staffed mainly by auxiliary nurses. Since 1974, some health post staffs have been strengthened by the addition of a new type of auxiliary health worker, the Rural Health Technician (TSR) of which 175 currently are working in Guatemala.

MOH health centers are categorized in two ways. The type-B health centers, have beds and are staffed by a senior medical student, allied health personnel and sometimes, by a TSR. The type-A health centers, have beds and are staffed by two physicians, one of which may be a senior medical student, and a large number of nurses and other allied health workers. Type-A health centers usually have a small number of beds for maternity patients, trauma cases, or patients under observation, pending possible transfer to a hospital. The beds in all health centers total 161.

A third type of health center, the Integrated Health Center, is to be constructed within the next three years using IDB loan funds. These centers will have more beds than the type-A centers; however, the exact number of centers to be constructed and beds to be provided is unknown at this time.

The 37 MOH hospitals contain a total of 9,407 beds of all types. 1/ More than 1,000 of these are psychiatric beds, while another 500 are in tuberculosis sanatoria (many tuberculosis cases are also kept in regional hospitals). The ratio of total-hospital beds-to-population is 1.6 beds per 1,000 in MOH facilities; if the mental and tuberculosis institutions are excluded, the ratio is 1.4 general beds per 1,000. 2/

---

1/ Ministerio de Salud Pública y Asistencia Social, República de Guatemala, Recursos Humanos y Distribución de Camas en Instituciones de Salud. 1975, pages 166-167.

2/ The ratio of hospital beds per 1,000 population is useful only for comparative purposes. Higher ratios are not intended to be recommended goals. These ratios reflect the pattern and function of the national health care delivery system. For example, in Guatemala the rate of 1.4 is indicative of a non-physician practitioner medical care delivery system, while the ratio of 4.6 in the United States reflects a physician practitioner system.

The staffing of these hospitals naturally varies with their size; the larger facilities have several doctors and professional nurses, while the smaller ones may have only a few. Even though most of the hospital beds outside the metropolitan capital are in MOH facilities, approximately 60 percent of all MOH beds are located in the capital department, where approximately 22 percent 1/ of the national population lives. Additionally, the over-all staffing of the non-metropolitan hospitals is weaker than that in the metropolitan capital. The large Roosevelt Hospital in Guatemala City has 1.6 personnel-per-bed, while the small hospital in Huehuetenango has only 0.4 personnel-per-bed. 2/

Compared with the hospital staffing ratios in more developed countries, such as the United States, which had a personnel-to-bed ratio of 3.15 in 1973, ratios are low in the large Guatemalan hospitals, and extremely low in the small peripheral hospitals. The extreme understaffing in the rural MOH hospitals undoubtedly has a substantial impact on the efficiency of these units.

Despite the low staffing ratios, the bulk of the MOH annual budget is spent on hospitals and personnel. Of expenditures of nearly $35,000,000 (excluding transfers) in 1975, only 10% was spent on non-hospital preventive services.

The Guatemalan Institute of Social Security (IGSS). Since 1946, Guatemala, as most other Latin American countries, has developed a special program of health services for steadily-employed workers, both public and private, and for their dependents, to a limited extent. However, in several respects the population coverage and medical benefits provided by IGSS are more restricted than in most other countries of the hemisphere. The social security system is financed by earmarked contributions or "quotas" from employers and workers, based on a percentage of the wages paid. All monies are kept in a separate fund and may be used only for medical and other social benefits, determined by the IGSS Board of Directors. Although these operations are under the general surveillance of the Ministry of Labor, the independence of the social security fund grants a high degree of autonomy and stability to the entire program.

Under the IGSS system, general medical care is currently provided only for workers in the Department of Guatemala. Health services for dependents are limited to maternity services and general health care of children, until their second birthday. Outside of the Department of Guatemala, services are restricted to the treatment of accidents, both non-occupational and work-related; dependents of these workers currently have no benefits. On the other hand, unlike most other Latin American countries, all finca workers in Guatemala are covered for these limited benefits,

---

1/ An estimated 22% of the population lived in the Department of Guatemala in 1973 and 1975. In the absence of more current data, it is assumed that this percentage has remained constant.

2/ Annex 5.10: Efficiency of the Guatemalan Health Sector.

as long as the finca employs five or more workers. However, this coverage of finca workers is more theoretical than actual because the IGSS facilities are located so far from the population to be served.

In 1975 the total number of persons served by this health program was 741,000 or 12.1 percent of the national population (6,081,000). However, only 278,770 persons, or slightly less than five percent of the population, were eligible for the complete medical services available in the metropolitan area; the other seven percent were entitled only to trauma services in the rural areas and maternity and infant care in the Capital area.

IGSS provides its services principally through its own facilities: 35 hospitals with 1,767 beds, and 20 ambulatory care units. However, five IGSS hospitals in the metropolitan area have 955 beds or more than half of the IGSS national bed total. Likewise, four relatively large polyclinics in the central city provide more ambulatory health care services than the combined total of the other 16 ambulatory care units, which are limited to accident cases. 1/

The major concentration of the IGSS program is on curative medicine, but some preventive services are offered, including prenatal and post-partum services to pregnant women, immunization of children, and some accident-prevention efforts in large factories. In the metropolitan area, occasional chest X-ray surveys of workers are conducted for the early detection of tuberculosis. Approximately 25 percent of the total IGSS expenditures are for non-medical benefits such as monetary benefits to disabled workers and cash maternity grants.

In certain peripheral departments, when the number of insured workers in an area is too small to justify an IGSS hospital or health station, IGSS services are provided through contractual arrangements with MOH facilities. IGSS contracts with the MOH for approximately 330 such beds in ten MOH facilities throughout the country.

The financial ability of IGSS to provide medical care is superior to that of the MOH. With its 1976 budget of nearly $32 million (adjusted to account for only medical expenditures), IGSS was responsible for delivering complete health services to only 5% of the nation's population. With only a slightly higher budget of approximately $35 million, the MOH theoretically is responsible for providing 100% of the population with even more comprehensive medical services, as well as with sanitation and nutrition services. 2/

---

1/ Annex 5.10: Efficiency of the Guatemalan Health Sector further describes the IGSS program.

2/ Detailed expenditures and financial analysis appears in HSA Chapter 4.7: Financing the Extension of Coverage, and Annexes 5.9: Financing the Extension of Coverage, and 5.10: Efficiency of the Guatemalan Health Sector.

Other Major Guatemalan Governmental and Voluntary Health Organizations. Several other governmental organizations or programs provide health services or are related to health care in some manner. These include:

1. The military forces which have a well-developed health care program, consisting of approximately 500 beds in Guatemala City and 48 clinics throughout the country, all staffed and operated by military personnel.

2. The national police, who provide a separate health care program, consisting only of a national hospital in Guatemala City and a small clinic in Quezaltenango.

3. Bienestar Social, a program in the Office of the President, under the direction of the President's wife, which is devoted mainly to nutritional and health related services for impoverished children. The annual budget for this national program is approximately $4 million.

4. The Public Works Division, which is responsible for the construction of most hospitals, and health centers (although the MOH reviews the architectural plans for facilities), and for environmental sanitation resources.

5. The larger local municipalities, which take responsibility for water supply, refuse disposal, and other aspects of environmental sanitation. Municipalities also may construct health posts to be staffed and operated by the MOH. In the metropolitan department a few small dispensaries are operated directly by municipalities.

6. Guatemalan Red Cross and Local Fire Departments (Bomberos) and 35 other health-related private voluntary organizations (HPVOs), which provide a broad range of curative and preventive services throughout the country.

7. The University of San Carlos, which is a semi-autonomous entity linked to the Ministry of Education and financed almost entirely by the central government. A large institution with a long tradition and great prestige, it houses Guatemala's only school of medicine, as well as its schools of dentistry and pharmacy. An "open admission" policy in these professional schools allows any secondary school graduate to be admitted, although the great majority fail out and only a small fraction of those initially admitted are graduated. Of direct relevance to the health care system is a university requirement that before earning the academic degree, every medical student must work for six months at a rural health post.

### 3.2.2 International Health-Related Private Voluntary Organizations (HPVOs)

There are 115 international health-related private voluntary organizations in Guatemala which receive all or most of their funds from other countries. This group comprises 77% of the 150 voluntary health organizations which work in Guatemala, the remaining 23% are Guatemalan-supported organizations.

The majority (53% ) are located in the Western and Central Highlands. Virtually all provide health services, in one form or another, to low-income rural residents. Twenty-one percent are non-sectarian, while the majority, 79%, are religiously affiliated groups.

HPVO Profile. Total annual HPVO expenditures are estimated at $4.8 million for medical services and $3.5 million for PL-480 food distribution. When these expenditures are combined with the $22.4 million spent by the MOH for hospitals, health posts and health centers, the national aggregate per capita expenditure for health-related activities is $5.04 per person per year. Of this total, the MOH expends $3.68, the PL-480 Food Program $0.58, and the HPVOs $0.78 per person per year.

Thus, through a combination of normal expenditures, coupled with expenditures related to the PL-480 Food Program, the HPVOs effect 27% of the national per capita expenditure for health.

In rural areas, where the MOH spends $2.22 1/ per capita; the PL-480 Food Program $0.64, and the HPVOs $1.13, 2/ the HPVOs account for 45% of the total rural per capita expenditures for health-related activities.

Collectively, the largest HPVOs employ 1,646 persons, including 24 doctors, 50 graduate nurses, 83 vocational nurses, 1,373 health promoters, and use thousands of local community volunteers and a substantial number of volunteer professionals from Guatemala and the U.S., as well as from other countries.

These employees and volunteers operate 50 clinics, 6 small hospitals, 1,156 food distribution/nutrition centers, 3/ and 21 auxiliary training programs for health promoters, auxiliary nurses, and midwives.

---

1/ The majority of this expenditure is on the regional hospitals.

2/ The majority of this expenditure is on ambulatory care and health promoter activities.

3/ Of these sites, 418 are CARE sites, usually at MCH health centers or health posts.

In comparison with the MOH, the HPVO facilities are significantly more productive:

TABLE 3.2.2-A

COMPARATIVE MOH AND HPVO PRODUCTIVITY RATIOS

| | Ambulatory Care Centers as of 1977 (including MOH Health Centers and Health Posts) | In-Patient Facilities | Total Facilities | Total 1/ Patient Visits Annually | Patient Visits Per Year Per Facility |
|---|---|---|---|---|---|
| MOH | 629 | 37 | 666 | 831,000 | 1,248 |
| HPVOs | 50 | 6 | 56 | 649,694 | 11,602 |

Source: Annex 5.8: A Study of Health-Related Private Voluntary Organizations in Guatemala.

The median length of years of service of the HPVOs currently in Guatemala is eight years. Of all the health-related groups which came specifically to provide earthquake relief in 1976, the majority have either re-directed their efforts into reconstruction or have left the country.

The HPVOs working in health and nutritional services receive funds from many countries: 50% from the U.S., 43% from various European countries, 3% from the United Kingdom, and 4% from Canada.

Summary. Health needs in rural Guatemala, as evidenced by the major causes of death, 2/ are medically most effectively addressed through basic primary care and improvement of environmental sanitation. The HPVO health services appear to function efficiently and to be well oriented to the health needs of rural Guatemala in those areas in which they are located; however, they are not well-oriented to the entire rural population of Guatemala because the health coverage of the HPVOs is so heavily concentrated in a few areas.

---

1/ Memoria Anual de Actividades de Areas de Salud, División de Programación y Servicios - 1975, Dirección General de Servicios de Salud. Ministerio de Salud Pública y Asistencia Social.

2/ The major causes of death are described in Chapter 2.4: Indicators of Health Status and Part 4.1.5: Communicable Disease Control.

### 3.2.3 Private Practitioners and Private Institutions.

Private enterprise within the health sector encompasses four categories: those services of traditional practitioners, such as curanderos, faith healers and comadronas; modern physician, dental, and hospital services; industrial medical programs; and agricultural medical programs.

Traditional Practitioners. The most ubiquitous provider of health care in Guatemala is the traditional practitioner found in Guatemala's several thousand small villages, especially the highlands villages, which are inhabited almost totally by Indians. In addition to the curandero, or traditional healer, who is usually male, the "comadrona", or village midwife, 1/ attends the great majority of Guatemalan childbirths.

The number of traditional healers, or curanderos, in Guatemala is crudely estimated to be 9,000; most of these are not full time healers, but make their living principally in agriculture or other pursuits. Even if each curandero averaged only one-third time at healing activities, and the full-time-equivalent number of curanderos was 3,000, the number still exceeds substantially the approximately 2,000 trained physicians in Guatemala.

Midwives also work episodically, probably more so than the traditional healers, and certainly less regularly. A 1975 survey of the midwife registries, legally required of each municipality, yielded a count of approximately 16,000 midwives currently in practice. 2/

While both healers and midwives are essentially a part of the private health care sector, their charges for services are highly variable. The amount varies with the affluence of the patient and the severity of the case, and often, they are paid by barter. As in scientific medicine, charges are also greater if the practitioner has acquired a reputation for many cures or good service.

---

1/ All but a fraction of the midwives are self-taught and have received no formal training.

2/ This estimate is a minimum number. Field investigations indicate that a substantial number of midwives do not register because they do not have training and fear legal action. The degree of under-registration cannot be estimated.

Modern Physicians, Dentists, Pharmacists and Hospitals. Modern, trained physicians registered with the Guatemalan Medical Registry (Colegio Médico da Guatemala) number 2,326 in 1977. However, this registry includes many names of physicians not in the country or deceased. In 1973, 1,270 physicians were employed by the two major public agencies: the Ministry of Health (MOH) and Instituto Guatemalteco de Seguridad Social (IGSS). Together these programs have increased their medical staffs by approximately 100 per year, thus in 1976 they employed about 1,570 physicians. It can be assumed that approximately one-half of the remaining 756 doctors on the registry are not actively working in Guatemala; therefore, the number of active physicians in 1977 is approximately 2,000, a ratio of one physician to each 3,000 persons.

TABLE 3.2.3-A

DISTRIBUTION OF PHYSICIANS IN GUATEMALA
BY AMOUNT OF TIME SPENT IN PRIVATE AND INSTITUTIONAL PRACTICE

| PART-TIME PRIVATE PRACTICE | | | FULL TIME PRIVATE PRACTICE | TOTAL |
|---|---|---|---|---|
| MOH | IGSS | OTHER | | |
| 900 | 600 | 300 | 200 | 2,000 |

Source: USAID, Public Health Division, 1977.

Virtually all Guatemalan physicians, whether employed by an organization or not, engage in private practice. Of the approximately 600 doctors employed by IGSS, most are paid for four hours per day, and the balance of their time is devoted mainly to private practice. Most of the approximately 900 physicians attached to the MOH are theoretically full time, but it is widely recognized that nearly all engage in a significant amount of private practice to supplement their modest salaries. Of the remaining 500 active physicians, perhaps 60 percent are engaged in the military services, in the University, in health-related private voluntary organizations (HPVOs) or in other ways, leaving about 200 doctors exclusively engaged in private medical practice. A 1972 study by the Colegio Médico found that 8 percent of Guatemalan doctors were in exclusive private practice, or 160 physicians in 1977. The

remaining 92 percent spend part of their time in private practice, along with organizational employment. The proportion of time and earnings from private practice typically rises with the doctor's age level.

Another component of the private sector in Guatemala is the private hospital of which there are 59 with a combined total of about 1,200 beds. More than two-thirds of the private hospitals are in Guatemala City; the remainder, in the peripheral departments, provide mainly private maternity services.

The development of systematically organized dental programs is very weak, therefore, probably a larger proportion of the services of Guatemalan dentists is private than applies to medical services. In 1973, of 376 dentists in the nation, 115 were engaged in the MOH and IGSS. As is the case in most developing countries, dental care in Guatemala is mainly a relative "luxury" service for a small affluent minority.

Local community pharmacies are another important component of the private health care sector. In Guatemala, as throughout Latin America, the private pharmacist is viewed by the people as a primary care practitioner, and is preferred to the doctor for minor problems because he does not charge for his advice. Thus, a great proportion of the population goes directly to a pharmacy for medication to cope with their symptoms, and since a doctor's prescription is seldom demanded, the patient thereby saves the doctor's bill and the pharmacist makes money on the drugs he prescribes to the patient. In addition, thousands of drugs are prescribed by doctors.

Of the 224 pharmacists in Guatemala, less than 20 are employed by the two major public programs. Thus, approximately 200 are engaged in retail pharmaceutical practice. In smaller towns drugs are frequently dispensed at general stores without a pharmacist on the premises.

In 1976 Guatemalans spent $40 million on the purchase of retail drugs. By comparison, the entire 1976 budget for the Ministry of Health, which paid for all services in all departments, totaled approximately $35 million.

In addition to these major providers of modern health care, small numbers of other private health care providers are found in Guatemala, such as opticians and prosthetic shops.

Although most of the health personnel data offered above are approximations, it is clear that the private health care sector in Guatemala is substantial. Table 3.2.3-B compares the substantial private medical care expenditures with public expenditures.

TABLE 3.2.3-B

A COMPARISON OF PRIVATE AND PUBLIC EXPENDITURES FOR HEALTH CARE

| PUBLIC HEALTH EXPENDITURES (49%) | | PRIVATE HEALTH EXPENDITURES (51%) | |
|---|---|---|---|
| Ministry of Health (1976 adjusted) | 34,980,000 | HPVOs | 4,500,000 |
| | | Private Drugs | 40,000,000 |
| IGSS (1976) | 31,677,000 | Private Physicians | 21,000,000 |
| Bienestar Social | 4,305,000 | Private Hospitals | 5,400,000 |
| Municipal Centers | 1,000,000 | Private Dental | 4,500,000 |
| | | Other | 1,000,000 |
| | $71,962,000 | TOTAL | $76,400,000 |

TOTAL SECTOR EXPENDITURES $148,362,000

Source: Annex 5.10: Efficiency of the Guatemala Health Sector Assessment, July 1977.

The significant amount of health sector expenditures made for private medical care is only part of the imbalance; the majority of the private expenditures are made in Guatemala City on behalf of less than 1,000,000 persons.

Industrial Health Programs. A few large factories in the metropolitan area provide in-plant health services for their workers, related largely to industrial injuries or occupational diseases. No data are available on the number of workers covered by private industrial health programs.

Agricultural Health Programs. The agricultural labor force consists of approximately 500,000 permanent workers and family members plus 1,500,000 migrant workers and family members, who are on the fincas for approximately 90 days per year.

Although Guatemalan law requires that a first aid station be located on each plantation, these are usually staffed by an untrained person. Additionally, some fincas contract with a physician

to make monthly visits, but the number of workers covered in this manner is very small. Additionally, because of the long distances between the fincas and nearby villages, the finca population is virtually excluded from any medical care that might be available in the village.

Two associations of Guatemalan coffee growers have taken the initiative to provide limited ambulatory medical services to their workers. Services are provided through clinics, each of which serves several thousand workers and their families; each clinic is staffed by a full-time physician plus nurses. Although the main support comes from the finca owners, the patient must also pay a small fee for each service. Other special health services, of more limited scope, have been organized by selected agricultural enterprises 1/

3.2.4 USAID/Guatemala.

The majority of USAID/Guatemala health activity, as part of its general developmental strategy, has been directed toward low-income rural residents. Specific objectives have been:

1. To improve access to primary care services, both preventive and curative, through the expanded use of auxiliaries non-physician practitioners, and community organization.

2. To decrease the birth rate through expanded access to contraceptive devices and family planning education materials and programs.

3. To increase the effectiveness of health care facilities by upgrading and equipping rural health care facilities.

4. To improve health through interventions in other sectors, i.e., increasing small farmer agricultural productivity, use of high-lysine corn and distribution of PL-480 food, health education messages through the Basic Village Education Project, and construction of modern slaughterhouses and other community sanitary facilities.

Additionally, a major evaluation of MOH rural health services is being conducted, and after the earthquake a major disaster relief program was initiated. Table 3.2.4-A indicates the type and amount of all USAID loans and grants made to the GOG for health related programs.

---

1/ See Part 4.1.7 and Annex 5.7: Extension of Health Services to Finca Workers.

TABLE 3.2.4-A

USAID-ASSISTED HEALTH PROGRAMS IN GUATEMALA, 1959-1977

| TYPE OF ASSISTANCE | RECIPIENT OF ASSISTANCE | AMOUNT OF ASSISTANCE | YEAR OF AUTHORIZATION | PURPOSE OF ASSISTANCE |
|---|---|---|---|---|
| Loan L-011 | SNEM | 1,550,000 | 1966 | To support various malaria control activities. |
| Loan L-011A | SNEM | 630,000 | 1969 | To support various malaria control activities. |
| Loan 520-L-020 | MOH | 2,500,000 | 1971 | Terminated on July 31, 1976. Provided for 1) the remodeling and equipping of the paramedical training institute in Quirigua, Los Amates, 2) the development of the training curriculum and teaching materials, 3) equipment for 161 rural health posts and medical, surgical and maintenance equipment for regional (departmental) hospitals, 4) heavy duty vehicles and ambulances in the rural areas, and 5) a health sector planning unit in the National Economic Planning Council. |
| Loan 520-L-021 | MOH | 3,400,000 | 1972 | Scheduled to terminate in December 1978, the loan finances six main activities: 1) the renovation and equipping of eight regional hospitals (Mazatenango, Tiquisate, Coatepeque, Melchor de Mencos, Jutiapa, Chiquimula, Zacapa, Huehuetenango), 2) construction of an auxiliary nursing school in Jutiapa, 3) further remodeling and expansion of the paramedical training institute of Quirigua, 4) the design and installation of a radio communications net which links rural health posts to rural health centers, 4) technical assistance to the Health Planning Unit in the Planning Council, and 5) vehicles to be used by the Health Area Chiefs for supervising health personnel in the rural areas. |
| Loan 520-L-017 | INFOM | 2,497,690 | 1970 | Loan finances the construction of health posts and aqueducts, sewers, slaughterhouses. |
| SUBTOTAL FOR LOANS | | $10,577,690 | | |

| | | | | |
|---|---|---|---|---|
| Grant 520-0189 | GOG/MOH | 4,318,000[1] | 1967 | Grant supported a variety of family planning activities within the MOH which included distribution of information and devices through health centers and posts. The University of Del Valle developed educattional materials and APROFAM ran a private-public service family planning clinic system. |
| Grant 520-0237 | APROFAM | 921,000 | 1977 | Grant replaced previous grant to the MOH and finances the expansion of APROFAM family planning activities. |
| Grant 520-0228 | Ministry of Education | 13,000 | 1975 | Grant supports a system of public radio stations which broadcast health education messages as part of their normal programming. Dollar amount shown reflects portion of programming devoted to health. |
| Grant 520-0244 | Agua del Pueblo | 24,000. | 1976 | Grant finances: 1) a study of the development of a paraengineer that could construct simple rural water and excreta systems, and 2) investigations into methods of self-financing water system development. |
| Grant 520-0230 | Guatemalan Academy of Medical, Physical and Natural Sciences | 927,000 | 1975 | Evaluation of rural health care to include activities of GOG rural health post workers, their relationship to the communities and basic variables affecting community and individual health. |
| Grant 520-0231 | CARE | 267,500 | 1975 | The three-year grant provides funds for water and latrine projects developed by communities with the assistance of TSRs. The TSR works with village self-help communities which provide the voluntary labor and some locally available materials for construction of the water and latrine systems. |
| Grant 520-0241 | GOG | 1,748,154[2] | 1976 | Funds were used for earthquake disaster relief which included reconstruction of water systems, health posts, and sewerage systems. |
| SUBTOTAL FOR GRANTS | | $ 8,218,654 | | |

[1] Funds provided directly from USAID/Guatemala; AID/Washington grants not included.

[2] A total of $25 million was appropriated by Congress but only $1,748,154 was for health projects. Earthquake relief funds also were used for construction of shelter, roads, electrical systems repair, and schools.

## SUMMARY OF USAID-ASSISTANCE IN GUATEMALA 1959-1977

| TYPE OF ASSISTANCE | RECIPIENT OF ASSISTANCE | AMOUNT OF ASSISTANCE | YEAR OF AUTHORIZATION | PURPOSE OF ASSISTANCE |
|---|---|---|---|---|
| SUBTOTAL FOR LOANS | | $10,577,690 | | |
| SUBTOTAL FOR GRANTS | | 8,218,654 | | |
| TOTAL FOR LOANS AND GRANTS | | 18,796,344 | | |
| GRANTS FOR FOOD | GOG | 34,754,200 | 1959 | Distribution of supplemental food under the PL-480 Food for Peace Program. |
| TOTAL USAID ASSISTANCE | | $53,550,544 | | |

Key: SNEM: Servicios Nacionales de la Erradicación de Malaria (Malaria Eradication Program)
MOH: Ministry of Health (Ministerio de Salud Pública y Asistencia Social)
GOG: Government of Guatemala (Gobierno de Guatemala)
INFOM: Instituto Nacional de Fomento Municipal (Institute for Municipal Development)
APROFAM: Asociación Pro-Bienestar Familiar (Family Welfare Association)

### 3.2.5 International Lending Institutions.

International lending institutions such as the Inter-American Development Bank (IDB), the U.S. Agency for International Development (USAID), and Kreditanstaldt, (the West German Development Bank), have had a significant effect on shaping the Guatemalan health care delivery system.

IDB has had the most dramatic effect on Guatemala with past, current and anticipated loans totaling $48,000,000 for water development, $30,000,000 for sewerage, and $63,000,000 for hospital/health-center/health-post construction. Total IDB input since 1966 will be $141,000,000.

Total USAID input since 1959 has been $53,550,544. This includes $2,180,000 loaned for malaria eradication, $5,900,000 for expanding the rural health delivery system and $2,497,690 for the construction of health posts, aqueducts, sewers and slaughterhouses, a total of $10,577,690 since 1966. Table A, in section 3.2.4 indicates that USAID has also made grants totaling $8,218,654 to the GOG and other organizations involved in public health activity, including earthquake disaster relief, and has granted another $34,754,200 for the distribution of supplemental food through the Food for Peace Program.

The combined total of Kreditanstaldt, the Central American Bank of Economic Integration and the Canadian Agency for International Development is $7,167,000.

Table 3.2.5-A indicates the health loans provided by the major international institutions. The combined total for all health loans from all sources, since 1966, is $158,744,690, of which approximately 7% has been loaned by USAID. Of the total loans made to Guatemala since 1966, $156,564,690 were for capital development and $2,180,000 were for curative programs.

## 3.3 Health Planning in Guatemala

A major objective of the Health Sector Assessment is to improve the Guatemalan health planning process in order to move toward a more efficient, effective and equitable distribution and utilization of resources in the health sector. It is the intent of the Guatemala Health Sector Assessment to improve the capacity of USAID, the Government of Guatemala (GOG), and others to make rational decisions in the use of health resources.

Since planning, resource allocation, decision-making, and change are intimately related, they must be viewed as political as well as technical planning processes. The entire Guatemala

TABLE 3.2.5-A

LOANS MADE FOR HEALTH PURPOSES BY INTERNATIONAL LENDING INSTITUTIONS

| LOANS GRANTED | | | | | LOANS BEING NEGOTIATED | | |
|---|---|---|---|---|---|---|---|
| AGENCY | AMOUNT | OBJECTIVE | SUBSCRIPTION OF CONTRACT | REPAYMENT TIME (YEAR) | AGENCY | AMOUNT | OBJECTIVE |
| USAID | 1,550,000 | Malaria Eradication I | 17- 8-66 | 2006 | IDB | 35,000,000 | Construction of Hospitals |
| USAID | 630,000 | Malaria Eradication II | 30- 7-69 | 2009 | IDB | 20,000,000 | Sewerage repair |
| USAID | 2,500,000 | Rural Public Health I | 19-11-71 | 2011 | | | |
| USAID | 3,400,000 | Rural Public Health II | 14- 2-73 | 2013 | | | |
| USAID* | 2,497,690 | Health System Improvement | 1975 | | ACDI | 3,000,000 | Master Plan - Potable Water |
| IDB | 3,020,000 | Urban Aqueducts | 11- 8-66 | 1991 | | | |
| IDB | 1,400,000 | Rural Aqueducts I | 30- 9-66 | 1996 | | | |
| IDB | 15,500,000 | Potable Water Introduction | 5- 6-70 | 2000 | | | |
| IDB | 2,600,000 | Rural Aqueducts II | 29- 3-72 | 2002 | | | |
| IDB | 10,000,000 | Sewerage - Guatemala City | 16-10-73 | 2013 | | | |
| IDB | 5,000,000 | Urban Aqueducts | 7- 5-75 | 2015 | | | |
| IDB | 10,000,000 | Xhya-Pixcaya Aqueduct | 21- 5-75 | 2015 | | | |
| IDB | 7,000,000 | Rural Aqueducts III | 15- 1-76 | 2016 | | | |
| IDB | 3,500,000 | Urban Aqueducts | 10- 2-62 | 1985 | | | |
| IDB | 28,000,000 | Rural Health Services | 18- 6-76 | 2016 | | | |
| BCIE | 1,800,000 | Potable Water Introduction | 30- 6-75 | 1985 | | | |
| KREDITANSTALDT | 2,367,000 | Construction of San Marcos Hospital | 11- 3-75 | 2005 | | | |

Source: Loan Agreements - Dirección Técnica del Presupuesto (Budget Technical Office - Ministry of Public Finances), 1976.

Key: USAID - United States Agency for International Development
IDB - Inter-American Development Bank
BCIE - Banco Centroamericano de Integración Económica
ACDI - Agencia Canadiense para el Desarrollo Internacional
Kreditanstaldt - West German Development Bank

* Refers to Loan Number 520-L-017 made to INFOM, a portion of which is for the health service infrastructure.

Assessment effort, from planning of the work scope through implementation and evaluation of programs resulting from its findings, is a major health planning activity. Participants from at least two GOG Ministries and seven administrative divisions planned to contribute 9,000 hours of analytical effort valued at $32,000 to developing the Health Sector Assessment, in collaboration with more than twenty external and local consultants.

A brief analysis of the entire health planning process is described here in order (1) to clarify the planning framework within which the Assessment has been conducted, and (2) to underscore the health planning problems revealed by the Assessment. An analysis of the state of health planning in Guatemala requires examination on the national, regional and local levels of the planning structure, the participants involved, the planning process and the products.

3.3.1 Organizational Structures for Planning. A recent comparative study of health planning in 13 countries indicates that the typical mode of planning in developing countries is through a strong national, centralized structure, with an emphasis on integration of health into the national economic development goals. 1/ Guatemala typifies this mode. Although a number of institutional participants are involved in planning, in all cases it is a highly centralized process with decisions being made at the national level. And, concern for the role of health in overall development planning is a principal emphasis. The Director of the Health Planning Unit of the National Economic Planning Council (CNPE) states that the major reason the Unit exists "is to harmonize the National Health Plan with the National Economic Development Plan". 2/

The CNPE is not the only structure through which planning for health is conducted, the Ministry of Health (MOH) and the Guatemalan Institute of Social Security (IGSS) each have organized planning structures. No single public organization is responsible for conducting or coordinating all planning for the sector.

Two possible organizational foci exist for health-sector policy planning. First, the creation of the present Ministry of Health in 1969 included an Advisory Committee with membership from IGSS, the Municipality of Guatemala, San Carlos University,

---

1/ World Health Organization Project USA 5300, 1977, a continuing study, unpublished.

2/ Interview with Dr. Carlos Estrada Sandoval, July, 1977.

the Social Welfare Council and the Ministry of Health. Although this is the closest form of a National Health Council that exists, it has no staff, almost never meets, and has never played a role in priority setting. However, the potential remains and has only to be used by the MOH leadership. Second, a recently created Inter-Sectoral Commission on Nutrition is developing a staff and data, and is considering a national nutrition policy. 1/ This commission will not cover other areas of health planning; however, should it succeed in bringing together the various participants to produce a usable plan, the model may be extended to other areas, such as health facility construction and manpower planning.

More important in the short term, is the lack of effective structures for establishing priorities at the department or community level. No formal or even regular informal structure exists at these levels for communicating norms and policies downward, or incorporating inputs and evaluation results upward. Those organizational channels which do exist are limited to single agencies dictating to their dependents.

There is no organizational structure through which to make or implement plans directed at sector priorities for community development, nutrition, education or broader resource questions related to the health status of a given population. The most logical focus of local level planning is the office of each Health Area Chief, but for all practical purposes, he has no planning staff or resources. The Health Area Chief's only input to planning is the submission of the health area budget. Subsequent administration of that budget is out of his hands for all practical purposes.

3.3.2 Participants in Planning.

Health planning is conducted by both private and public groups. The private groups are located principally in Guatemala City and are focused narrowly upon individual hospitals or clinics; aggregate private expenditure is estimated at approximately $75 million or 49% of the total health sector expenditures. Most participants in public health planning are at the national level. In addition to the CNPE, IGSS and MOH Planning Units, important roles are played by the

---

1/ The Commission is under the organizational responsibility of the Secretary General of the National Economic Planning Council, with membership from agriculture, health, education and other sectors.

Ministry of Finance in the budget process so critically linked to planning, the University of San Carlos in the health manpower planning field, and to some extent, the Congress and President's Office. Below the national level only limited participation by Health Area Chiefs occurs but it should be noted along with isolated cases of ad-hoc participation by local community health committees.

The Health Planning Unit of the National Economic Planning Council was established in 1973, largely as a result of USAID financial support and the desire to create a health planning potential with a multi-sector focus. Its seven professional staff include two physician/health planners, two senior economic planners, one sanitary engineer, and two junior-level analysts. The CNPE Health Planning Unit is responsible for the development and implementation of the National Health Plan, the health sector component of the Five-Year National Development Plan. 1/ It also reviews all new MOH and IGSS projects proposed for the health sector, participates in sector budget reviews and may even propose new programs for MOH implementation, such as the Rural Health Technician (TSR) Program. The Health Planning Unit's most recent activity has been as principal GOG participant and coordinator for the Guatemala Health Sector Assessment. The long-term viability of this unit is not secure since all of its staff positions are funded by USAID loan support scheduled to terminate in 1978.

The Office of Health Planning within the MOH exists as a staff office to the Minister. The weakness of this office to plan aggressively for sector-wide development unfortunately reflects the situation within the MOH itself. Its current technical staff consists of two or three physicians, two economists and five or six program analysts whose limited training and experience in health planning are overwhelmed by the demands of the office. The office has been further weakened by the removal of the statistics staff to a separate Division of Statistics. An examination of Planning Office operations indicates that, rather than initiating planning activities or analysis, its main function is limited to harmonizing the annual budget requests of the 24 Health Area Chiefs prior to submission to the Ministry of Finance.

---

1/ Planning functions of the CNPE are detailed in the Plan Nacional de Salud, Tomo 1, pages 77-80.

The Guatemala Social Security System, IGSS, has a health budget nearly comparable to the MOH, but little attention is paid to its role in the attainment of the national health planning goals. The IGSS planning unit is staffed exclusively by architects and is concerned mainly with the expansion and construction of facilities.

The University of San Carlos is the sole producer of physicians, dentists, and pharmacists in the country. A lack of coordination and integration of the University's training programs with the needs of the health sector results in huge enrollments in medical school and continued high production of doctors at a time when most graduated doctors are unable to find jobs. The rationale given for the over-production of physicians is that they will eventually leave the Capital City and set up practices in rural areas. No evidence supports this proposition; rather, newly-graduated doctors who cannot finds jobs in medicine in the Capital take employment in non-medical fields in order to stay in the urban area.

Ministry of Finance participation in planning is limited to fiscal concerns: they react to the MOH budget by either accepting or rejecting the programs proposed. This Ministry receives all the proposals for program funding, therefore it plays a critical role in reviewing priorities of the health sector as a whole. However, its approach is more one of incremental funding of past programs, rather than one of technical analysis of alternative resource allocation for the sector or any analysis of the relationship between budget requests and MOH priorities. It may be speculated that a stronger MOH planning office within the Ministry of Health could provide the Ministry of Finance with a more complete analysis of the alternatives and of the relationship of programs to general GOG priorities.

Other national participants in planning for health have been identified but little substantive information exists about their mode of behavior. When important decisions are required, especially relative to social change, both the President and Congress participate; however, the role of Congress appears limited. In the past, Congress also has been active in the approval of foreign aid monies.

A Community Development Program exists within the Office of the Presidency, which includes a one to two-million-dollar budget for village level water projects, food supplements and other projects of the President. These programs could benefit from a closer working relationship with similar programs within the MOH and elsewhere.

Department and local participants in planning are generally few and weak. The potentially crucial role of the Health Area Chiefs in planning and implementation is substantially nullified by their lack of authority to make decisions. This is particularly distressing given the national plans for decentralization. A serious problem could be created by decentralizing responsibility for program without decentralizing authority over local resources.

A few local health committee-type organizations are active but they are usually formed on an ad-hoc basis for a specific purpose, such as obtaining land rights for a health facility, or collecting money for water system maintenance. They do not participate in decisions of how MOH resources may be best spent in their communities and are not a part of the planning process.

In reality, the Health Area Chiefs are just as restricted in planning the use of departmental resources as the local communities. All significant resource allocation decisions for the country are made in Guatemala City.

3.3.3 Planning: The Process and The Product. A technically competent and accurate health plan is only meaningful if used. The likelihood of its being used rather than shelved with dozens of other plans and reports varies directly with the process by which the document is prepared. When the process involves the key decision-makers for health policy in the sector, as well as people at the operational or program implementation level, both a more useful product and valuable process will result.

National Health Policy and Plan. In the development of a policy to guide planning activities in the health sector, Guatemala has been influenced strongly by the goals of the Ten-Year Health Plan for the Americas 1/ approved by PAHO Ministers in 1974. To the degree that these hemisphere-wide priorities truly fit those of the GOG decision-makers, they can serve to guide the local planning process and the formal goals of local national health plans. Effective communication among the technician-planners and the politician-decision-makers concerning such policy-priority guidance is critical, if both parties are not to work in a vacuum and experience frustration.

A commitment to the goals of the PAHO Ten-Year Health Plan is found in the Guatemalan National Health Plan 1975-1979, th

---

1/ Plan Decenal de Salud para las Américas, PAHO, September 1974.

principal planning document currently in use. The core strategy of the National Health Plan is exactly that adopted by the Ten-Year Health Plan, i.e., the "extension of coverage". Analysis of this strategy during the Assessment has uncovered numerous constraints to implementation of this goal. 1/

The Guatemalan National Health Plan identifies coverage goals and quantifies objectives, but no financial plan, no manpower plan, and no projects are formulated for the implementation of these objectives. No staff is responsible at either the central or area levels for determining how best to increase coverage. Thus, the concept of "extension of coverage" is without a program and without identifiable budget entities, the lack of which severely constrain its implementation. The other strategies of the Guatemala National Health Plan have the same constraints.

Budgetary Formulation and the Planning Process. An excellent manner in which to observe the planning process in action is to trace the budget formulation process. It is here that the greatest opportunity for sector-coordination of resource allocation exists, and where the decision-making stakes are high. The cursory review of this process which follows reveals two large weaknesses: 1) the involvement of uncoordinated multiple actors; and 2) an almost total absence of the use of the budget as a planning and management tool. The MOH budget process is as follows:

1. The National Economic Planning Council proposes a share of the total national budget for use by each sector. An unallocated amount is set aside for sector adjustments if they are warranted later in the process.

2. The Ministry of Public Finance gives the Ministry of Public Health its "ceiling" for the next budget year, usually an amount similar to the allocation of the previous year.

3. Health Area Chiefs prepare requests for three parts of the budget: personal services, non-personal services, and materials, supplies, machinery and equipment. These requests are forwarded directly to the MOH Planning Office without review by the Director General of Health Services to whom the Health Area Chiefs report in all other matters.

4. Division of Programming. This Division serves as the statistical unit of the Director General and develops budget norms and the capital budget for health services. It sets the capital budgets for reconstruction and new construction of health centers and health posts, as well as their staffing requirements, although these are developed for the Programming Division by other specialized units. The norms and construction

---

1/ See HSA Part 4.1.1 and Annex 5.1: Constraints to the Extension of Coverage of Health Services.

programs are sent from the Division of Programming to the Planning Office for detailing the budgetary requests of the hospitals, health centers and health posts.

5. The Planning Office receives both the requests from the Health Area Chiefs and the norms and programs from the Division of Programming, which it assembles and adjusts based on prior norms. The capital programs forwarded by the Division of Programming are added, and the budget is sent to the Minister of Public Health for transmittal to the Minister of Public Finance and to the National Economic Planning Council.

6. National Economic Planning Council. The Health Unit of the National Economic Planning Council reviews the budget of the Ministry of Public Health and suggests changes for increased effectiveness or for the elimination of items with technical problems. Based on their review of the budget as it moves from the Office of Planning in the Ministry of Public Health to the health sector officials in the Ministry of Public Finance, the Planning Council can raise questions but it may be too late to effect major changes.

7. Ministry of Public Finance reviews the budget and eliminates inconsistencies or poorly supported requests for additional funds. It may cut programs or specific items within programs. No formal joint review takes place by the staffs of the MOH and the Ministry of Public Finance, although some informal personal communications occur.

8. The President, The Council of Ministers, and The Congress. The Ministry of Public Finance forwards its recommendations to the President for action by him and the Council of Ministers. In turn, the Council submits the national budget to Congress for its ratification.

9. Appeal to the Council of Ministers. The Minister of Health can appeal the recommendations of the Minister of Finance to the Council of Ministers before the Council sends the budget to Congress.

Planning Within IGSS. The formulation of the MOH budget described above obviously does not include IGSS, although IGSS is technically a part of the MOH. IGSS submits its proposals through similar channels but excludes any review by the MOH. Furthermore, IGSS does not participate in the health sector portion of the national health plan for extension of coverage.

Six years ago IGSS completed a plan to broaden the range of services offered in rural areas and to extand services to small population areas, such as fincas and small towns. 1/ This plan called for the development, on the south coast, of a system of health centers and health posts coordinated with IGSS hospitals to provide a full range of health services. No action on the plan has been taken, although it is probable that it will be initiated soon. 2/

This calls attention to the need for coordinated development of the health system in Guatemala, including joint planning and utilization of facilities.

3.3.4 Summary: The Planning Problems in Guatemala. This analysis of health planning in Guatemala, combined with the conclusions of a number of studies completed during the Guatemala Health Sector Assessment, conclude that the following are the major health planning problems facing the Government of Guatemala:

1. Lack of institutional coordination in the sector. Planning of health resources, even within the public sector expenditures, is not complementary. The National Plan for Health, for example, does not incorporate the programs of IGSS or other agencies. No single entity is responsible for health sector planning which is almost totally divorced from program implementation.

2. Private Sector Autonomy. Although the majority of the health services are delivered through the public sector, little more than one-half of the national health expenditures originate there. The more than $75 million (49% of total health sector expenditures) being spent in the private sector is almost totally undirected or uninfluenced by public planning. Except for some dispensing of drugs and professional licensure regulations, the public sector has virtually no control over private health care expenditures.

3. Weakness of Regional and Local Planning. If health is to be a part of national development planning, a strong national planning focus is required with complementary inputs from those lower levels in the system which are close to the daily operational and population problems. Planning

---

1/ IGSS, Planificación Integral y Solución Regional del Sistema Médico Hospitalario para la Región Nacional Sur de la República de Guatemala.

2/ Annex 5.10: Efficiency of the Guatemalan Health Sector. IGSS intends to begin implementing this plan in 1978.

and operations could be strengthened by a stronger role for the Health Area Chiefs and the local health committees in the establishment of general goals and specific activities and programs.

4. Inadequate Information System. An accurate and effective management information system is crucial to technically competent planning.

The area of inadequate information is that of health manpower. For example, the information made available by the registries of physician and graduate nurses provides a basis for estimating the magnitude and deployment of these two categories of personnel for use in human resources planning. However, the paucity of information on deployment of auxiliary health workers denies manpower planners feedback from the field to evaluate training programs.

In addition to data on public programs, a health-sector information system should incorporate private health expenditures and resource utilization data because private health expenditures represent such a large part of total health expenditures.

5. Separation of Health Manpower Needs and Educational Planning. Human resources are the critical ingredient in a health service delivery system, especially when less-intensive technology is employed. However, the health planners in both the CNPE and MOH Planning Units have little input in this area. For example, the University of San Carlos decides independently how many doctors, dentists and pharmacists it will train, even though the MOH is the principal employer of physicians. Current University procedures do not link the projected health manpower needs of the MOH, other public employers, or the capacity of the private sector to support physicians, with the output of the University training programs, or with MOH training programs.

6. Budgeting as Planning The budget formulation process illustrates how difficult program budgeting would be in Guatemala. The budget is not an effective planning tool in its present form: to plan without effective budget input means that the current limits of the resources cannot be adequately considered.

# SECTION 4

# ANALYSIS AND RECOMMENDATIONS

## 4.1 Extension of Services

This chapter consists of eight parts and describes major institutional constraints to the extension of services, major groups that are not currently reached by existing services, and current institutional attempts to reach the groups in need of services. The eight parts of the chapter are:

4.1.1 Administrative Constraints to Extension of Coverage of Health Services

4.1.2 Maternal and Child Health Services

4.1.3 Demography

4.1.4 Family Planning

4.1.5 Communicable Disease Control

4.1.6 Community Participation

4.1.7 Extension of Health Services to Finca Workers

4.1.8 Health-Related Private Voluntary Organizations

Each of these parts contain a discussion of the problem and recommendations for improvement.

### 4.1.1 Administrative Constraints to the Extension of Coverage of Health Services 1/

**Problem Analysis**

Modern medical services are not readily available to sixty-five to seventy percent of Guatemala's population. The specific factors which constrain the extension of health service coverage to a large portion of the population have been the focus of specific parts of the Assessment which consider the problem further as it relates to that particular area. This chapter focuses on the barriers, especially administrative and policy-related, to bringing Ministry of Health (MOH) services to rural areas. The extension of coverage of health services to rural areas is emphasized since the bulk of human and financial resources are found in Guatemala City, which has 80% of the physicians and 50% of the hospital beds to serve 20% of the national population. The services of the Guatemalan Social Security Institute (IGSS), the other principal public provider, are not emphazised since they mainly serve a special eligible worker population in the Capital City and since IGSS already spends eight times more per eligible person than the MOH. Measures for improving extension of service, such as combining IGSS and MOH services, is analyzed in Chapter 4.2 of the Assessment.

Current health service coverage, measured in terms of medical consultations, is exceedingly poor; for example, only 15% of all births each year are to women who have seen trained health personnel before delivery. Less than .25 consultations per child, between the ages of one and five are recorded annually, and only an estimated 11% of the total population has at least one outpatient visit per year, despite the MOH goal of one outpatient visit per person per year. 2/ These are national averages; the situation in the rural target area is worse because of fewer and less accessible facilities, and less manpower.

The Ministry of Public Health has demonstrated interest in increasing coverage, evidenced by the increased expenditures since 1973. 3/ Examination of MOH policy statements and planning, programming, budgeting and administrative activities indicates five general methods for the improvement of health services coverage.

---

1/ Annex 5.1: Administrative Constraints to the Extension of Coverage of Health Services discusses the issue in detail and offers recommendations for improvement of the extension of coverage.

2/ Outpatient visits data are for 1975; the population-at-risk figures are for 1973, but are considered good estimates for the 1975 population.

3/ See Section 3.2.1, Figures 3.2.1-A and 3.2.1-B.

1. Increase the Productivity of Medical Care Personnel

Studies of the personnel performance at health centers and health posts indicate that many of theprofessionals and other personnel work well below reasonable capacity, perhaps as little as 30%, 1/ during their assigned hours on duty.

The Ministry's solution is administrative reorganization. Relieving doctors of some administrative responsibilities will allow them to see more patients. An example of the magnitude of the anticipated increase in that patient visits to type-B health centers is expected to increase 185% in 1977 over 1976 levels. However, the budget for the type-B health center is projected to increase only 25% in 1977 over 1976 levels. It would appear that the basic constraint to logistical support of this method of expanding services has not been addressed.

2. Increase the Number of Facilities

The Inter-American Development Bank loan to the Government of Guatemala is for construction of three new 200-bed hospitals, seven health centers with up to 25 beds, 48 centers with up to six beds, and 173 health posts, over the next five years. These facilities will not only replace facilities damaged in the 1976 earthquake but also extend services to currently unserved areas. The limiting constraints to this method are staffing, equipping, and maintaining additional facilities given the current problem of existing rural facilities.

3. Increase Health Manpower

The principal method for increasing available health manpower is a planned increase in the capacity of training institutions, and increased MOH budget to hire the personnel once trained. The constraint to this approach is the length of time it will require to produce needed staff, and the length of time required to develop new staff positions needed for the new facilities.

4. Increase Utilization

The utilization of health facilities, as a percentage of the existing capacity, averages only 27% of capacity for ambulatory facilities outside Guatemala City. The principal method to improve utilization is to use Rural Health Technicians (TSRs) and health promoters to encourage patients to use the facilities. This method has shown some results. The constraint appears to be the cultural incompatibility of health post and health center medicine with many rural people.

---

1/ Percentage of capacity is calculated by multiplying the GOG norm for patients to be seen per hour by the available physician hours, and dividing the product into the number of patient visits.

5. Promote Community Action

This method calls for the TSRs and promoters to form community health committees and develop projects in nutrition, sanitation, personal hygiene and modern medical care. This method has also shown positive results. The principal constraint of this educational approach is its basic slowness since it must proceed at the pace of the participants.

The implementation of these five basic methods to increase coverage has been only partially successful. Even with optimistic projections, the total patient consultations in 1977 will result in less than 0.3 per person.

The analysis of these MOH methods for extension of coverage indicates that they are based on a number of assumptions which, in part, may not be optimal for goal achievement. First, it assumes the extension of primary medical care coverage to rural population through the use of highly trained manpower, and ignores the potential benefits of community nutrition, environmental, and other public health programs which do not require experienced clinical physicians. Second, it assumes that incremental increases in the existing system of facilities and manpower will achieve extension adequately. However, usually the rural facilities are dramatically under-utilized by the rural population. Third, and most important, is the assumption that communities need to change so that they will want to use the existing services. However, little attention is given to making the health services more attractive to potential users or, alternatively, to offering a different package of services to the community and obtaining their participation as planners and providers of the service, as well as its consumers.

The Budget Process as a Managerial Tool

At the National level of the MOH, a serious administrative constraint to more effective programming is the budget process. Eight distinct public entities participate in budget formulation, from Health Area Chiefs to the President. Consultation among them, and the process of integrating various stages of budget requests and approvals, is far from optimal. For instance, the Health Area Chiefs prepare requests for three parts of the budget: personal services, non-personal services, and materials and equipment; meanwhile, the MOH Division of Programming develops the capital budget and budget norms, which set staffing and other significant resource factors. These requests are forwarded separately to the MOH Planning Office, then lumped together and forwarded

to the Ministry of Finance, but without formal joint review. Once the budgets are approved, the budget execution stage presents additional problems. For example, Health Area Chiefs have no control over manpower assignments, and since budgets do not permit the full implementation of staffing norms, reassignment of staff is often arbitrary, and usually beyond the control of the Health Area Chief.

The effective expansion of coverage is threatened by budget practices for two principal reasons:

1. The use of manpower norms for facilities and the manner of their development foreclose the exploration of alternative staffing policies to produce significant increases in coverage. The insistence that only one combination of manpower skills can produce desired services ignores modern managerial practice.

2. Each of the budgetary-actors is remote from the others. Scheduled in-depth reviews of the health budget between the Ministers of Finance and Health are necessary, if significant unintended program imbalances or cuts in high priority programs are to be prevented.

The extension of coverage is also constrained by the inability to manage and implement the programs planned. The National Health Plan, 1975-1979, identifies goals and quantifies objectives but except for the Inter-American Development Bank project to finance the building of additional hospitals, health centers and health posts, no financial plan, no manpower plan, and no projects are formulated for implementing the objectives. Thus, as the plan moves to the bureaucracy for implementation, no clear idea exists of how to implement it, nor what changes are needed in regulations, policies, or budget and manpower allocations.

No staff is responsible at either the central or Health Area levels for determining how best to increase coverage. As the budget moves from the Office of Planning in the Ministry of Public Health to the health sector officials in the Ministry of Public Finance, the Planning Council can raise questions based on their studies but this may be too late. Thus, the concept of extension of coverage is without a program design, without implementation techniques, and without identifiable budgetary entities, except for some capital projects.

Any attempts to remedy this situation must take into account the following:

1. It is necessary to orient officials of the Ministry of Health, the National Economic Planning Council, and the Ministry of Public Finance to the use of the budgeting process as a tool for more effectively extending coverage of programs.

2. Supervision and coordination at the Health and Programming Office levels is necessary for program implementation.

Decentralized Management and Planning Capacity

Another impediment to extension of coverage is the lack of decision-making authority at the district and Health Area levels. The administrative capacity of Health Area Chiefs, whatever its potential, is constrained because the management of resource allocation within a Health Area remains centralized with respect to drugs, equipment, construction, and manpower. Thus, the Health Area Chief cannot rationalize the health care system for which he is responsible. He can supervise and teach workers, encourage them (but without incentives), and halt obvious mistakes. In general, the Health Area Chiefs have little training in administration or in public health, and receive little help or guidance from higher level supervisors with respect to how to increase coverage.

One approach to effective decentralization of the system is to give health centers and health posts district-wide population responsibilities and delegate required authority and resources. For example, the maternal and child health clinics, as well as general consultations, should be scheduled in specific villages at specific times. Evaluations of productivity should be based less on internal facility activities and more on the demonstration that larger, more remote, poorly-served populations increasingly have reasonable access to services.

Manpower Constraints

Manpower is a critical constraint to extension of services. Because of lead-times required to implement training programs and train personnel, it is imperative that manpower planning be undertaken beyond the budget year. Such planning must be coordinated with other planning elements, including construction programs and analyses of delivery system patterns. Manpower planning should include a careful analysis of alternative staffing possibilities to produce the desired health services, rather than be limited to extrapolations of existing staff formulations.

An important aspect of the manpower constraint is the excess utilization of highly trained physicians for the direct delivery of medical care, whose high cost of production, concentration in the Capital City, and financial and professional commitments to private practice, all make change in the direction of extended health service coverage difficult. For example, of general-medical consultations in health centers and health posts in 1975, 65% were seen by physicians and only 35% by paramedical personnel. In health centers alone, 71% of infant patient visits were provided by physicians. One obvious route to more productive manpower is to increase the patient care given by health workers other than physicians. Rural Health Technicians (TSRs) and Health Promoters are two types of health workers recently developed in imaginative, innovative and energetic programs. Their capacity has not been fully realized within the MOH. They fulfill the role of salespersons for the clinical work of the health centers and health posts and as agents of community change.

Manpower may be a constraint in other ways. The problem of extended health services coverage requires sharp increases in utilization of the current capacity. Therefore, the staff of rural facilities must speak local indigenous dialects, because virtually all the women and children are monolingual. Without the capacity to communicate with the local community, the health post staff never have a chance to develop the local confidence needed prior to any large increase in utilization.

In addition, government physicians usually work no more than four hours a day since they usually supplement their incomes by maintaining a private practice. This is a real constraint on manpower, both in terms of time and location, and may be addressed by hiring physicians full time.

Recommendations

Based on the Problem Analysis and the subsequent discussion, the following recommendations are made with respect to the extension of health services coverage.

General Recommendations:

Recommendation 1: THE PROCESS OF BUDGET FORMULATION AND EXECUTION WITH RESPECT TO MOH PROGRAMS SHOULD BE UTILIZED AS AN EFFECTIVE TOOL FOR PROGRAM MANAGEMENT AND PLANNING, RATHER THAN ONLY AS A FINANCIAL CONTROL MECHANISM.

Recommendation 2: AT THE MINISTERIAL LEVEL, A SMALL STAFF SHOULD BE CREATED, AND CHARGED WITH THE DESIGN, REVIEW AND AUTHORITY TO ENSURE THAT NECESSARY RESOURCES ARE SPECIFICALLY BUDGETING, APPROPRIATED, AND USED FOR PROJECTS AIMED AT IMPLEMENTING PLANNED EXTENSION OF COVERAGE GOALS.

Recommendation 3: ADMINISTRATIVE CAPACITY AT THE HEALTH AREA AND DISTRICT LEVEL WILL HAVE TO BE STRENGTHENED PRIOR TO FURTHER DECENTRALIZATION OF PROGRAMS THROUGH THE DECENTRALIZATION OF THE AUTHORITY TO IMPLEMENT PROGRAMS, TO PROVIDE TECHNICAL ASSISTANCE SUPPORT AND TO TRAIN IN THE MANAGEMENT RESOURCE ALLOCATIONS.

Recommendation 4: TO MAXIMIZE COVERAGE AT A MINIMAL COST, HUMAN RESOURCES PLANNING AND BUDGETING SHOULD BE BASED ON THE CONCEPT OF USING MEDICAL AUXILIARIES IN LIEU OF PHYSICIANS.

Recommendation 5: SELECTION OF PROGRAMS TO BE INITIATED IN RURAL COMMUNITIES SHOULD REFLECT LOCAL PARTICIPATION AND PERCEPTIONS.

Specific Recommendations:

These are to be implemented by a joint committee of the Health Unit of the Economic Planning Council and the Ministry of Health.

Recommendation 6: STUDIES SHOULD BE CARRIED OUT IN THESE AREAS OF THE HEALTH SYSTEM WHICH APPEAR TO IMPEDE EXTENSION OF COVERAGE:

A. THE SYSTEM OF PROCUREMENT, STOCKING AND DISTRIBUTION OF DRUGS FROM THE NATIONAL DRUG WAREHOUSE TO HEALTH FACILITIES SHOULD BE EVALUATED INCLUDING STATISTICAL NEEDS, FORMS, USES, COSTS AND METHODS.

The credibility to a population of a health service is frequently its ability to make curative and palliative drugs available. Utilization and acceptance, both of curative and preventive services, may depend on the availability of medicines and pharmaceutical supplies.

B. A COMPREHENSIVE STUDY IS NEEDED OF THE MOH INFORMATION SYSTEM, INCLUDING STATISTICAL NEEDS, FORMS, USES, COSTS AND METHODS.

There is considerable under-reporting of data from the field; yet the current system places a very heavy reporting burden on field personnel; perhaps one problem may cause the other. Additionally, the amount of data collected at the central level is too much for its current processing and analytic capabilities.

C. SAMPLE HOUSEHOLD SURVEYS SHOULD BE DESIGNED FOR, AND TESTED IN RURAL AREAS TO DETERMINE THE HEALTH PROBLEMS, HEALTH BEHAVIOR, UTILIZATION AND EXPENDITURE PATTERNS.

Current available morbidity and mortality information is based almost solely on clinical records which makes coverage information difficult to ascertain, and creates meaningless epidemiological data. Sample household surveys designed and tested in selected rural areas will augment this information. The only existing survey information was collected in 1971, but the small sample size of fifteen communities was inadequate.

D. STUDIES SHOULD BE UNDERTAKEN IN A FEW COMMUNITIES, IN ONE OR TWO DEPARTMENTS, TO SEE IF THERE ARE WAYS OF SUPPORTING HEALTH SERVICES FOR THEIR POPULATIONS ON A COMMUNITY BASIS RATHER THAN A HEALTH CENTER/HEALTH POST BASIS: THAT IS, TO EXAMINE HOW THE RESOURCES OF THE HEALTH SERVICE SYSTEM (DRUGS, TECHNICAL KNOWLEDGE, MINOR EQUIPMENT, AND PERSONNEL) CAN BE USED TO SUPPORT COMMUNITY HEALTH ACTIVITIES.

E. THE ALTERNATIVE DEPLOYMENT OF HEALTH PERSONNEL SHOULD BE REVIEWED AND TESTED. SUCH A STUDY MIGHT EXAMINE COMMUNITY-BASED OUTREACH ALTERNATIVES FOR HEALTH EDUCATION, PREVENTIVE MEDICINE, AND CLINICAL SERVICES.

### 4.1.2 Maternal and Child Health (MCH) Services[1/]

#### Problem Analysis

In 1977, women of child-bearing age (between 14 and 44 years of age) in Guatemala number 1.3 million. Children less than 15 years of age number 2.9 million. These two groups constitute the maternal and child health (MCH) population-at-risk and total 4.2 million, or 64% of the total Guatemalan population of 6.6 million. Of this total, 37% are in urban areas and 63% are in rural areas.[2/]

Table 4.1.2-A indicates that within the twelve-year period between 1960 and 1972 there was little decline in the infant and child mortality rates in Guatemala and that stabilization of the rates is occurring at significantly higher levels than the overall Latin American rate. Although mortality rates are the result of a complex set of variables, including the environment, nutrition and income, some improvement could be made through an effective national Maternal and Child Health Program.

Within Guatemala, major differences exist between Indian and Ladino groups. Tables 4.1.2-B and 4.1.2-C display infant and child mortality rates for Indians and non-Indians. The infant mortality rates fail to show the actual differences between the two groups because infant deaths are poorly reported in rural areas. However, an Indian-child mortality rate of 1.7 times greater than the Ladino-child mortality rate clearly demonstrates the differences between the life styles of the two groups.

#### Maternal and Child Health Services

At the present time, maternal and child health services are provided by five different sources:

1. Private For-Profit Services, such as clinics, laboratories sanatoria and hospitals which serve a small number of recipients from the high socio-economic group, generally Ladinos or foreigners, who are residents of the capital or the deparments, and who can afford the relatively high cost of private services. An estimated 6.0% of the susceptible population utilizes these

---

1/ See Annex 5.2: Maternal and Child Health Services for a more detailed analysis of the problem and the proposed programs.

2/ All population groupings over 5,000 are considered urban; however, a substantial portion of the urban population outside of Guatemala City lives in population aggregations whose life style is rural and agricultural.

TABLE 4.1.2-A

COMPARATIVE INFANT AND MATERNAL MORTALITY RATES FOR GUATEMALA AND LATIN AMERICA

| | GUATEMALA | | | LATIN AMERICA | | |
|---|---|---|---|---|---|---|
| | Infant 1/ Mortality (per 1000) | Maternal 2/ Mortality (per 10,000) | Child 3/ Mortality (per 10,000) | Infant 1/ Mortality (per 1000) | Maternal 2/ Mortality (per 10,000) | Child 3/ Mortality (per 10,000) |
| 1960 | 89.3 | 23 | 324 | 71.3 | 19 | 140 |
| 1972 | 79 4/ 5/ | 16 6/ | 226 5/ | 78 6/ | 10 6/ | 100 6/ |

Source: OPS/OMS, Publicaciones Científicas No. 64, Julio 1962, pages 29 and 36.

1/ Infant mortality rates are expressed per 1,000 live births.

2/ Maternal Mortality rates are expressed per 10,000 live births.

3/ Mortality rates for children 1 to 4 years of age are expressed per 10,000 population.

4/ INCAP estimates actual infant mortality rate at 100/1,000 live births due to under-reporting of deaths in rural areas.

5/ Statistic Unit, Guatemalan General Directorate of Statistics.

6/ Organización Panamericana de la Salud, Programa de Adiestramiento Contínuo en Salud Materno-Infantil y Bienestar Familiar en Areas Rurales de Centro América y Panamá, 1976-1978.

TABLE 4.1.2-B

INFANT MORTALITY RATES PER 1,000 LIVE BIRTHS
BY URBAN AND RURAL AREAS AND ETHNIC GROUPS
GUATEMALA
1965 - 1973

| YEAR | TOTAL | INDIAN 1/ | NON-INDIAN | URBAN | RURAL |
|---|---|---|---|---|---|
| 1965 | 92.6 | 94.4 | 90.8 | - | - |
| 1966 | 89.0 | 90.2 | 87.7 | - | - |
| 1967 | 86.7 | 92.3 | 85.0 | - | - |
| 1968 | 92.0 | 101.5 | 83.6 | 97.6 | 88.7 |
| 1969 | 91.3 | 91.0 | 91.6 | 98.0 | 87.4 |
| 1970 | 87.1 | 80.7 | 94.0 | 90.3 | 85.3 |
| 1971 | 81.6 | 76.7 | 86.7 | 87.9 | 76.8 |
| 1972 | 79.0 | 70.8 | 88.0 | 86.5 | 74.4 |
| 1973 | 79.6 | 70.8 | 89.3 | 90.7 | 72.8 |

Source: Estadísticas Vitales, unpublished tabulations. Dirección General de Estadística. Guatemala.

1/ Both the Indian and Rural rates are considered low estimates due to significant under-reporting of infant deaths in rural areas.

TABLE 4.1.2-C

MORTALITY RATES FOR CHILDREN BETWEEN 1 AND 4 YEARS
PER 10,000 POPULATION
BY URBAN AND RURAL AREAS AND ETHNIC GROUP
GUATEMALA
1965 - 1973

| YEAR | TOTAL | INDIAN | NON-INDIAN | URBAN | RURAL |
|---|---|---|---|---|---|
| 1965 | 33.5 | 51.7 | 19.9 | - | - |
| 1966 | 31.0 | 47.7 | 18.3 | - | - |
| 1967 | 28.3 | 42.5 | 20.3 | - | - |
| 1968 | 31.6 | 46.6 | 19.9 | 27.7 | 33.4 |
| 1969 | 33.9 | 46.6 | 23.8 | 30.9 | 35.3 |
| 1970 | 27.0 | 36.3 | 19.5 | 24.7 | 28.1 |
| 1971 | 29.2 | 41.5 | 19.0 | 26.8 | 29.7 |
| 1972 | 22.6 | 30.6 | 15.9 | 20.9 | 23.3 |
| 1973 | 22.3 | 28.9 | 16.8 | 21.7 | 22.6 |

Source: Estadísticas Vitales, unpublished tabulations. Dirección General de Estadística. Guatemala.

facilities. It is expected that the utilization of these services will increase as the general level of socio-economic development of the country increases.

2. Health-Related Private Voluntary Organizations. Approximately 100 of the 150 Health-Related Private Voluntary Organizations (HPVOs) deliver direct health services in the country through clinics, and a few provide in-patient facilities. Most have active outreach programs using midwives and health promoters. The HPVOs are spread throughout the country but most are in the highlands where they serve Indians from the low socio-economic income group.

Utilization of the facilities and personnel (doctors, auxiliary nurses, trained midwives, and promoters) is high, relative to the rural MCH services. Generally, the services involve some form of active patient or community participation. It is estimated that depending upon the services from 20% to 70% of the susceptible population of the area in which the HPVOs operate utilize the MCH services offered by the HPVOs. However, because the HPVOs are unevenly distributed in Guatemala, their services cover only about 5% of the total MCH population-at-risk.

3. Guatemalan Institute of Social Security (IGSS). This Institute provides MCH services only to its members in the metropolitan area. Its facilities are relatively adequate and its specialized personnel are well utilized and have a high productivity. The beneficiaries are salaried working mothers or wives of members, and their children up to two years of age. An estimated 5.5% of the total MCH population is covered by these services. In the rural area no dependents are covered and services for members are restricted to accident care.

4. MCH Maternal and Child Health Services. The governmental MCH services are provided primarily in the 470 health posts, 159 health centers and 37 hospitals funded by the MCH and spread throughout the country's 24 health areas.

Over 25 years ago the government established the División Materno-Infantil y Familiar (DIMIF) under the Director General of Public Health for the surveillance of maternal and child health programs throughout the republic. While perhaps initially adequate, these programs have deteriorated in all but two departments[1/] due to the lack of supervision and periodic evaluation.

---

1/ Exceptions are the Departments of Santa Cruz del Quiché and Suchitepequez.

The traditional DIMIF program carries out its maternal and child activities through the following components:

Family Health Services - which render prenatal, delivery and post-natal services to mothers and services to infants under one year. Family planning services are also provided.

Preschool Health Services - which serve the population from one to five years old.

Oral Health Services - which provide dental services to the maternal and child population groups.

Education and Nutrition Services - which through the 13 SERN (Servicios de Educación, Rehabilitación y Nutrición) Centers provide food supplements for approximately 4,000 undernourished children per year. Nutrition education is provided to the mothers of the children and food is distributed to families who qualify for this aid and who are beneficiaries of the health services.

In summary, the four groups mentioned above presently extend MCH coverage to only 30% of the total population and only approximately 15% of the lowest income citizens. The following reasons are probable causes of the low MOH coverage.

The IGSS program relies on the Division Materno Infantil (DIMIF) to elaborate program norms for the entire country. Although these norms exist, they either are not applied or are relatively unknown in most direct services.

At the direct service level the physician personnel in both DIMIF and other MOH facilities carry out almost all of the consultations, initial and subsequent. This limits coverage, since the trained paramedical personnel have little opportunity to extend the capacity of the physician. The paramedical personnel are carrying out tasks that other personnel could perform, such as cleaning.

No standard exists to identify medium and high-risk pregnancies. Determination of risk is based on the personal opinion of the doctor and a distinction is generally made only between a normal pregnancy and a high-risk one; likewise, criteria are not available to identify children at high risk. If such criteria were used, high risk patients could be quickly referred to the appropriate facility for care.

Outreach services and active community participation in the programs are almost non-existent. Historically, the services are set up and the staff wait passively for people to utilize them. Thus, the phenomena of low utilization and limited coverage has changed very little throughout the years.

5. Midwives. A population group not cared for by any of the four conventional types of services mentioned above constitutes an estimated 70% of the country's at-risk population. This population group receives MCH services from empirical midwives (comadrona empírica) or a few trained midwives (comadrona adiestrada), and consists of Ladinos from the low socio-economic group, and Indians, spread throughout the country. Table 4.1.2-D indicates the percentage of deliveries by birth attendant and place of delivery for all departments of Guatemala.

Of 6,000 midwives recorded as trained during the last twenty years in courses sponsored by the Ministry of Public Health, only 905 or 15% were registered as practicing in 1975. In recent years, between 1971 and 1975, 1726 midwives were trained under the MOH/DIMIF programs. While this training figure represents 80% of the DIMIF goals, it still represents only 11% of the 16,000 midwives who are registered in Guatemala. It is probable, as DIMIF itself recognizes, that the recorded number is only part of the real total.

As indicated in Part 3.2.3 of this Assessment, Guatemalan law requires midwives to be trained and to register every year. A 1975 survey of the municipal registries in 18 departments revealed that approximately 13,000 midwives were recorded, the majority untrained; estimates for the other four departments raises the total to 16,000 registered midwives in Guatemala. However, it is believed that a substantial number of midwives are not registered because they are not trained and fear legal action; therefore, the actual number of midwives, trained or untrained, practicing for compensation, in cash or in kind, is more than 16,000.

Midwifery problems include those of: 1) supervision and evaluation, 2) insufficient numbers of training personnel, 3) insufficient financing, 4) training strategy, 5) pedagogy, and 6) sociocultural problems.

1. Supervision and Evaluation. There are simply not enough qualified, properly-oriented personnel to adequately supervise and evaluate the midwife training program. Supervision is largely limited to the feedback acquired through retraining (24 hours of class time prior to annual relicensing) and checking of usage of midwife kits. An attempt has been made to

TABLE 4.1.2-D

PERCENTAGE OF DELIVERIES BY BIRTH ATTENDANT AND PLACE OF DELIVERY FOR ALL DEPARTMENTS IN GUATEMALA, 1975

| | BIRTH ATTENDANT | | | | PLACE OF DELIVERY | | |
|---|---|---|---|---|---|---|---|
| Department | Doctor | Trained Midwife | Empirical Midwife | None | Hospital | Midwife Facility | Home |
| Guatemala | 71 | 7 | 21 | 1 | 63 | 6 | 31 |
| El Progreso | 2 | 23 | 70 | 5 | 2 | 3 | 95 |
| Sacatepéquez | 4 | 42 | 53 | 0.7 | 23 | 2 | 75 |
| Chimaltenango | 0.7 | 22 | 76 | | 2 | 6 | 92 |
| Escuintla | 4 | 43 | 33 | 20 | 12 | 3 | 85 |
| Santa Rosa | 1 | 21 | 54 | 24 | 0.8 | 0.4 | 99 |
| Sololá | 2 | 7 | 90 | 1 | 4 | 0.1 | 96 |
| Totonicapán | 0.6 | 15 | 84 | 0.1 | 3 | 0.1 | 97 |
| Quetzaltenango | 13 | 30 | 50 | 6 | 15 | 1 | 83 |
| Suchitepéquez | 3 | 11 | 85 | 1 | 11 | 2 | 87 |
| Retalhuleu | 8 | 39 | 52 | 1 | 19 | 1 | 80 |
| San Marcos | 3 | 13 | 76 | 8 | 5 | 0.1 | 95 |
| Huehuetenango | 2 | 10 | 85 | 3 | 4 | 0.1 | 95 |
| Quiché | 1 | 0.5 | 98 | 0.3 | 1 | 0.2 | 99 |
| Baja Verapaz | 0.7 | 0.9 | 93 | 5 | 0.2 | 0.2 | 99 |
| Alta Verapaz | 0.7 | 3 | 91 | 5 | 6 | 1 | 93 |
| Petén | 15 | 2 | 74 | 9 | 21 | 0.4 | 78 |
| Izabal | 8 | 38 | 40 | 13 | 22 | 1 | 76 |
| Zacapa | 15 | 21 | 29 | 38 | 23 | 2 | 74 |
| Chiquimula | 7 | 11 | 51 | 31 | 7 | 0.3 | 93 |
| Jalapa | 1 | 4 | 82 | 12 | 7 | 0.2 | 93 |
| Jutiapa | 1 | 32 | 64 | 3 | 11 | 0.2 | 89 |
| NATIONAL AVERAGE | 16 | 16 | 62 | 7 | 18 | 2 | 80 |

SOURCE: Unidad de Estadística, D.G.S.S.

interview mothers, but they generally have such high regard for "their" midwife that objective appraisal is difficult to obtain.

2. Sufficient Training Personnel. The inadequate numbers of personnel to supervise and evaluate reflects the general lack of personnel to implement or expand the program. Nurses who graduate from the MOH schools of nursing are not trained in midwifery and must themselves be trained for utilization in the program. A strategy for improving this situation is to develop more midwife training skills in existing MOH training programs or to develop a special training school for maternal and child health personnel, including supervisors, trainers and midwives.

3. Insufficient Financing. The midwife training program receives no budget support from the Ministry of Health, although DIMIF does provide administrative support and consultation. UNICEF, which had been providing funding, was asked for $33,000 for the 1976 activities, but provided only $13,000, based on $43.00 per comadrona adiestrada, during training and $13.50 for each kit. In 1977, UNICEF is providing money only for training in the earthquake disaster area. It is estimated that the initial cost of training 250 midwives and the cost of retraining the 1,726 midwives recently trained in the DIMIF program would be nearly $35,000.

4. Training Strategy. The strategy underlying the midwife program is training at the health center level and midwife patient-referrals to that same level. While this does formalize the linkage of the midwife to the fixed facility and assure some control over her activities, it also, for reasons of geography and logistics, effectively excludes large numbers of midwives and patients for whom access to the health center ranges from difficult to impossible.

5. Problems of Pedagogy. Pedagogical style naturally varies from trainer to trainer, but all trainers lack adequate audio-visual materials, a limiting factor, whatever the teaching style. The contents of the midwife teaching guide currently in use indicate that a great deal of material is crowded into the initial training period of 120 hours. Given the low educational levels of most midwives, this is probably more material than they are able to absorb and integrate into behavior.

More important is that the guide follows an apparently logical chronological sequence from orientation, through the post-partum period, and care of the newborn. This sequence runs the risk of having dropouts from training, who may still

practice as midwives, miss the elements which are most crucial to maternal-child health, particularly the danger signs of the prenatal, childbirth, and post-partum stages, as well as the crucial elements of fundamental hygiene. Little attention appears to be paid to diet for pregnant or lactating mothers or to absolutely impermissible behaviors. It may be that because of the heavy emphasis on clinic referrals of patients, sometimes accompanied by the midwife, it is felt that some of the prenatal instructions to mothers will be taken care of through these contacts.

6. Sociocultural Problems. DIMIF cites the language barrier as one problem in the training of Indian midwives. It is difficult, even with the use of a skilled translator, to be sure that comprehension has been achieved. However, trainers who speak one of the 22 Indian languages are virtually non-existent.

A second problem, ungeneralized, is the resistance by doctors to the training of midwives and something less than hospitable treatment by them of the midwives when they bring patients for consultations.

Another problem is that the training program is not designed to take into account the existing attitudes and behaviors of the trainee population. It does not consider them as factors to be understood, built on, and/or incorporated into programs but rather as something to be "un-learned".

At present 80% of deliveries are in the home, 62% of which are assisted by empirical midwives, who also provide certain services to the child. The health promoters and rural health technicians (TSRs) are involved with the maternal and child group, but their direct contact with this population group is restricted and on a lesser scale. Properly trained they could be valuable supplements to a national MCH program.

The empirical midwife, once trained, could render adequate service at relatively low cost, with wide coverage, while adapting realistically to the problems and limited resources of the health sector of the country. She should be a part of the referral system of cases from the least specialized health level to the most specialized, beginning in the community itself with the trained auxiliary personnel. This system of referral must be specific for the personnel who make the referrals and the type of health service they have at their disposal.

## Recommendations

Based upon the problem analysis and the preceding discussion, the following recommendations are made with respect to maternal and child health services.

Recommendation 1: A MAJOR ADMINISTRATIVE RESTRUCTURING OF DIMIF SHOULD BE CONSIDERED TO INCLUDE THE FOLLOWING:

DIMIF PROGRAMS SHOULD BE REORGANIZED, CONSOLIDATED AND EXPANDED HORIZONTALLY WITH ADEQUATE FINANCIAL SUPPORT AND HUMAN RESOURCES ALLOCATED TO PROVIDE AT LEAST MINIMUM SERVICE FOR THE MAJORITY OF THE POPULATION AT RISK.

A PERMANENT BODY SHOULD BE CREATED IN CHARGE OF SUPERVISING AND AUDITING ON THE AREA-LEVEL, EITHER AS PART OF A LARGER ADVISORY BODY, OR SEPARATELY, THE DEPARTMENT-LEVEL MATERNAL AND CHILD HEALTH PROGRAMS.

A TECHNICAL ADVISORY BODY SHOULD BE CREATED RESPONSIBLE FOR ADVISING THE CENTRAL AND AREA LEVEL WITH RESPECT TO IMPROVED MATERNAL AND CHILD HEALTH CARE POLICIES..

A RELIABLE DATA-GATHERING SYSTEM SHOULD BE DEVELOPED TO FACILITATE THE ANALYSIS AND PLANNING OF MATERNAL AND CHILD CARE PROGRAMS.

A VIABLE AND EFFECTIVE REFERRAL SYSTEM SHOULD BE DEVELOPED FOR MCH SERVICES WHICH PROVIDES FOR PERSONS TO MOVE BETWEEN SPECIALIZED CARE AND THE LOWEST APPLIED LEVELS.

NORMS SHOULD BE STANDARDIZED AND ADOPTED ON A NATIONAL LEVEL DESCRIBING IN DETAIL THE CRITERIA FOR HIGH AND MEDIUM RISK PREGNANCIES.

AN INTRA-MOH SYSTEM SHOULD BE ESTABLISHED THAT MAKES AVAILABLE TO MATERNAL AND CHILD HEALTH SERVICES INFORMATION FROM OTHER PROGRAMS SUCH AS ENVIRONMENTAL SANITATION AND THE CONTROL OF CONTAGIOUS DISEASES THAT MAY IMPROVE THE MCH PROGRAM.

Recommendation 2: THE USE AND TRAINING OF EXISTING MCH HUMAN RESSOURCES, WHETHER TRADITIONAL OR NON-TRADITIONAL, SHOULD BE RECONSIDERED WITH RESPECT TO THE FOLLOWING:

EMPIRICAL AND TRAINED MIDWIVES SHOULD BE TRAINED, RETRAINED, AND SUPERVISED SO THAT THEY BECOME A PART OF THE NATIONAL HEALTH SYSTEM PROVIDING SERVICES FOR THE MATERNAL AND CHILD POPULATION GROUP.

THE ASSISTANCE AT HOME DELIVERIES BY TRAINED PERSONNEL SHOULD BE EMPHASIZED AND ENFORCED SINCE LOGISTICS AND HOSPITALIZATION COSTS MAKE IT PRACTICAL TO REFER ONLY MEDIUM AND HIGH-RISK CASES TO SPECIALIZED SERVICES.

TRAINED HEALTH PROMOTERS AND TSRS SHOULD BE INTEGRATED INTO THE NATIONAL HEALTH SYSTEM PROVIDING SERVICES FOR THE MATERNAL AND CHILD POPULATION GROUP.

WITHIN THE HEALTH CENTERS AND HEALTH POSTS APPROPRIATE ACTIVITIES SUCH AS FOLLOW-UP CONSULTATIONS IN PRENATAL CARE, NURSING, AND EARLY INFANT CARE SHOULD BE DELEGATED TO PARAMEDICAL PERSONNEL TRAINED IN MATERNAL AND CHILD HEALTH.

MCH ISSUES, PROBLEMS, ALTERNATIVE TREATMENT MODALITIES SHOULD BE INCLUDED IN ALL MOH TRAINING.

AN INTERNATIONAL FUNDING SOURCE SHOULD BE FOUND TO SUPPORT THE COMADRONA TRAINING PROGRAM, FOR THE PURPOSE OF UNDERTAKING INNOVATIONS IN SUPERVISION AND CURRICULUM CONTENT.

THE POLICY OF REQUIRING MIDWIVES TO REFER ALL PREGNANCIES TO HEALTH CENTERS SHOULD BE RECONSIDERED. MIDWIVES COULD BE TAUGHT TO IDENTIFY HIGH AND MEDIUM-RISK PREGNANCIES, AND REQUIRED TO REFER ALL HIGH AND MEDIUM-RISK PATIENTS TO HEALTH CENTERS.

MIDWIFE TRAINING SHOULD BE DISAGGREGATED INTO TWO PROGRAMS: A CLINIC-BASED PROGRAM FOR THOSE MIDWIVES AND PATIENTS WHO ARE NOT PROHIBITIVELY FAR FROM THE CLINIC; AND A COMMUNITY-BASED PROGRAM FOR AREAS OUTSIDE A REASONABLE RADIUS OF A FIXED FACILITY WHICH WOULD ENCOMPASS MIDWIVES WHO, BY THEIR ISOLATION, HAVE VIRTUAL RESPONSIBILITY FOR THE LIFE AND DEATH OF THEIR PATIENTS.

THE CURRENT MOH MIDWIFE TRAINING SEQUENCE SHOULD BE REORDERED SO THAT THE MOST CRUCIAL MATERIAL IS TAUGHT FIRST.

### 4.1.3 Demography 1/

Guatemala has the largest population of the Central American countries, and Guatemala City is the most populous capital. The total urban population of Guatemala exceeds the urban population of other countries, although the percentage (25%) of the population living in cities of 10,000 or more inhabitants, is the second lowest in Central America, after that of Honduras. Approximately 40% of the total population are indigenous, the percentage is substantially higher in rural areas.

Growth Rate

Table 4.1.3-A and Figure 4.1.3-A present the enumerated total population of Guatemala as reported by the General Bureau of Statistics for censuses since 1778, including the five censuses of this century, and the implied annual rates of growth.

The 1940 figure has been corrected by about 300,000 "for a capricious alteration of the results." 2/ The 1950 population was estimated at 2,790,868 3/, at the census date, and the 1964 population at 4,287,997. 3/ These estimates imply that the census under-enumerated the population by 7.1 per cent and 3.5 per cent, respectively, in 1950 and 1964. 2/ The 1964 estimate is based on the results of the Post-Enumeration Survey. The adjusted 1950 census population was derived by reverse survival of the 1964 adjusted age-sex distribution.

The U.S. Bureau of the Census estimates that the 1973 population was 5,673,455, which implies an undercount of 8.2% by the census. 3/ However the official Government of Guatemala estimate of the 1973 population is 5,728,092. 3/

Use of the uncorrected data would lead to the mistaken conclusion that the rate of population growth in Guatemala was slowed considerably between the two intercensal periods, dropping from an average annual level of 3.1 per cent (1950-64) to a rate of 2.2 per cent (1964-73). However, the adjusted data indicate that the rate of population growth in Guatemala remained stable, averaging 2.77% throughout the entire 1950-1973 period.

---

1/ The technical demographic analysis is abstracted from "Demographic Trends and Urbanization in Guatemala", Robert W. Fox, Jerald W. Bugat, Inter-American Development Bank, 1976. The implications for growth are contributed by the Public Health Division, USAID/Guatemala.

2/ Guatemala, Dirección General de Estadística, VIII Censo de Población, 1964, Volume I, Guatemala City, 1971, page 5.

3/ Jorge Arias de Blois, La Población de Guatemala, 1974. CELADE, Population Projections.

TABLE 1.1.3-A

POPULATION OF GUATEMALA, 1778 TO 2000

Reported by General Bureau of Statistics

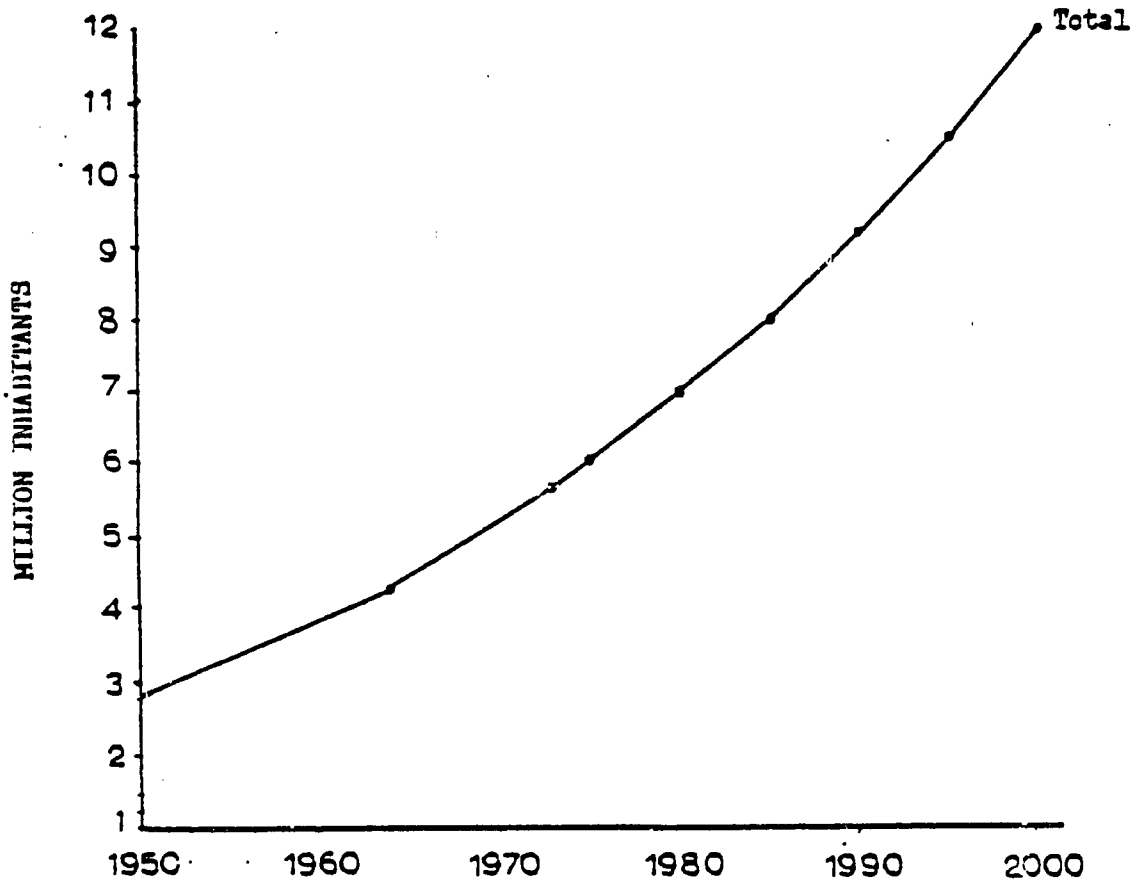
| Date of Census | Population | Growth Rate |
|---|---|---|
| 1778 | 396,149 | --- |
| 1880 | 1,224,602 | 1.11 |
| 1893 | 1,501,145 | 1.57 |
| 1921 | 2,004,900 | 1.02 |
| 1940 | 2,400,000 | 0.97 |
| 1950 | 2,790,868 | 1.50 |
| 1964 | 4,287,997 | 3.07 |
| 1973 | 5,728,092 | 2.73 1/ |
| 1975 | 6,081,635 | 2.80 1/ |
| 1980 | 7,006,020 | 2.75 1/ |
| 1985 | 8,041,965 | 2.59 1/ |
| 1990 | 9,200,755 | 2.43 1/ |
| 1995 | 10,508,311 | 2.23 1/ |
| 2000 | 11,991,461 | --- |

Source: Jorge Arias de Blois, La Población de Guatemala, 1974. CELADE, Population Projections.

1/ U.S. Bureau of the Census, International Statistical Programs Center, Washington, D.C., 1975.

FIGURE 4.1.3-A

TOTAL POPULATION-GUATEMALA




Source: Jorge Arias de Blois, La Población de Guatemala, 1974
CELADE, Population Projections.

TABLE 4.1.3-3

GUATEMALAN CRUDE BIRTH AND DEATH RATES (PER 1000) FOR THE PERIOD 1900 TO 1969

| YEAR | CRUDE BIRTH RATE | CRUDE DEATH RATE | RATE OF NATURAL INCREASE (%) |
|---|---|---|---|
| 1900-04 | 45.8 | 35.4 | 1.04 |
| 1905-09 | 43.6 | 34.0 | .96 |
| 1910-14 | 46.6 | 33.0 | 1.36 |
| 1915-19 | 43.2 | 40.8 | 0.24 |
| 1920-24 | 48.3 | 33.7 | 1.46 |
| 1925-29 | 49.2 | 32.6 | 1.66 |
| 1930-34 | 46.2 | 31.7 | 1.45 |
| 1935-39 | 44.2 | 30.7 | 1.35 |
| 1940-44 | 45.2 | 28.5 | 1.67 |
| 1945-49 | 49.1 | 26.5 | 2.26 |
| 1950-54 | 50.9 | 23.4 | 2.75 |
| 1955-59 | 49.0 | 20.0 | 2.90 |
| 1960-64 | 47.6 | 18.0 | 2.96 |
| 1965-69 | 44.0 | 16.4 | 2.76 |
| 1970 | 41.6 | 14.9 | 2.67 |
| 1971 | 43.8 | 14.4 | 2.94 |
| 1972 | 44.2 | 13.3 | 3.09 |
| 1973 | 43.4 | 15.4 | 2.80 |

Sources: 1900-1959: O. Andrew Collver, Birth Rates in Latin America: New Estimates of Historical Trends and Fluctuations, University of California, Berkeley, 1965.

1960-1973: Population Index 41:3 (July 1975) 546, 551.

Birth and Death Rates

Before 1920, both the birth rate and the death rate were high and the population grew at less than one per-cent-per-year. Since 1920, the birth rate has remained high and the death rate has declined steadily, thus increasing the growth rate of the population. The estimates of the actual population, at the time of the latest three censuses, imply an intercensal growth rate of 2.79% for 1950-1964 and 2.74% for 1964-1973.

Birth Rate

The estimated crude birth rates for 1900 to 1959 and as recorded since 1960 are shown in Table 4.1.3-B and Figure 4.1.3-B. Prior to 1960 the birth rate fluctuated between 45 and 50 per thousand population. Since 1960 a slight decline in the birth rate has been observed. However, the data do not evidence a long-term or substantial reduction in fertility. The crude birth rate in 1973 (43.4) was nearly the same as for the 1965 to 1969 period (44.0). The modest decrease in fertility is also shown by the total fertility rate (TFR) and age-specific fertility rates (ASFR). The TFR was 6.66 between 1949 and 1951, and 6.42 between 1963 and 1965. By 1973 the TFR was 5.89, still a high fertility level since it indicates that Guatemalan women average nearly six births apiece.

The age-specific fertility rates of 1963 to 1965 differed little from those of 1949 to 1951 (see Figure 4.1.3-C). The 1973 rates are estimated by distributing the total number of births in 1973 by the age-specific pattern of fertility of 1971. The rates estimated in this manner indicate that the slight decline in total fertility in Guatemala is attributable to lower fertility among women under 30 years of age, particularly those between the ages of 25 and 29.

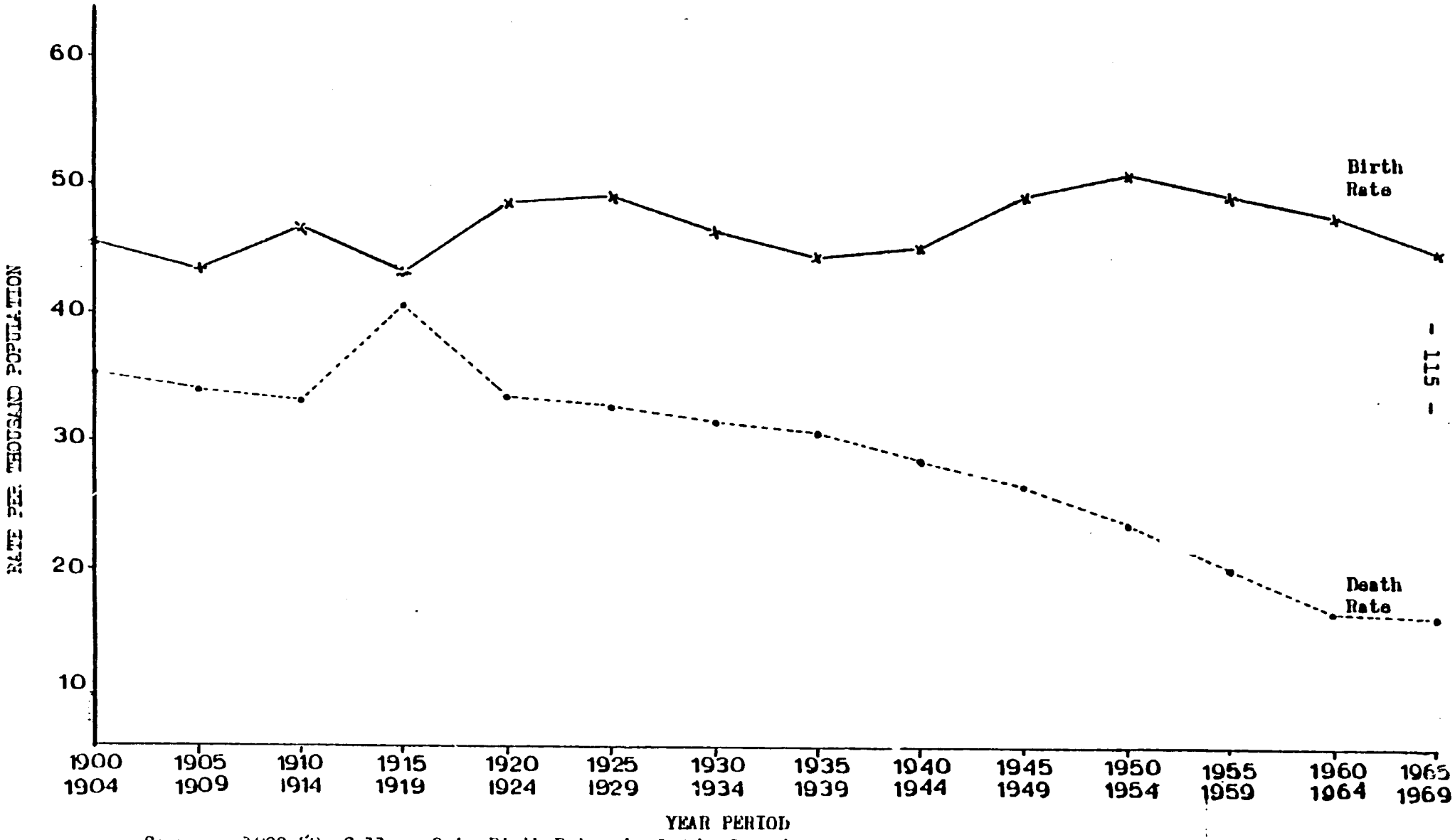
Death Rate

Table 4.1.3-B presents estimated crude death rates (CDR) for 1900 to 1959 and the registered rates for 1960 to 1973. The crude death rate declined slowly from 35.4 per thousand in 1900 to 20.0 per thousand between 1955 to 1959. The high rate of 40.8 during the period from 1915 to 1919 is attributed to the incidence of influenza during that period.

The death rate has continued to decline steadily from 18.0 between 1960 and 1964 to 13.3 in 1972. The rate of 15.4 recorded for 1973 is probably a temporary increase and it can be anticipated that the death rate in Guatemala will resume its long-term decline.

FIGURE 4.1.3-B

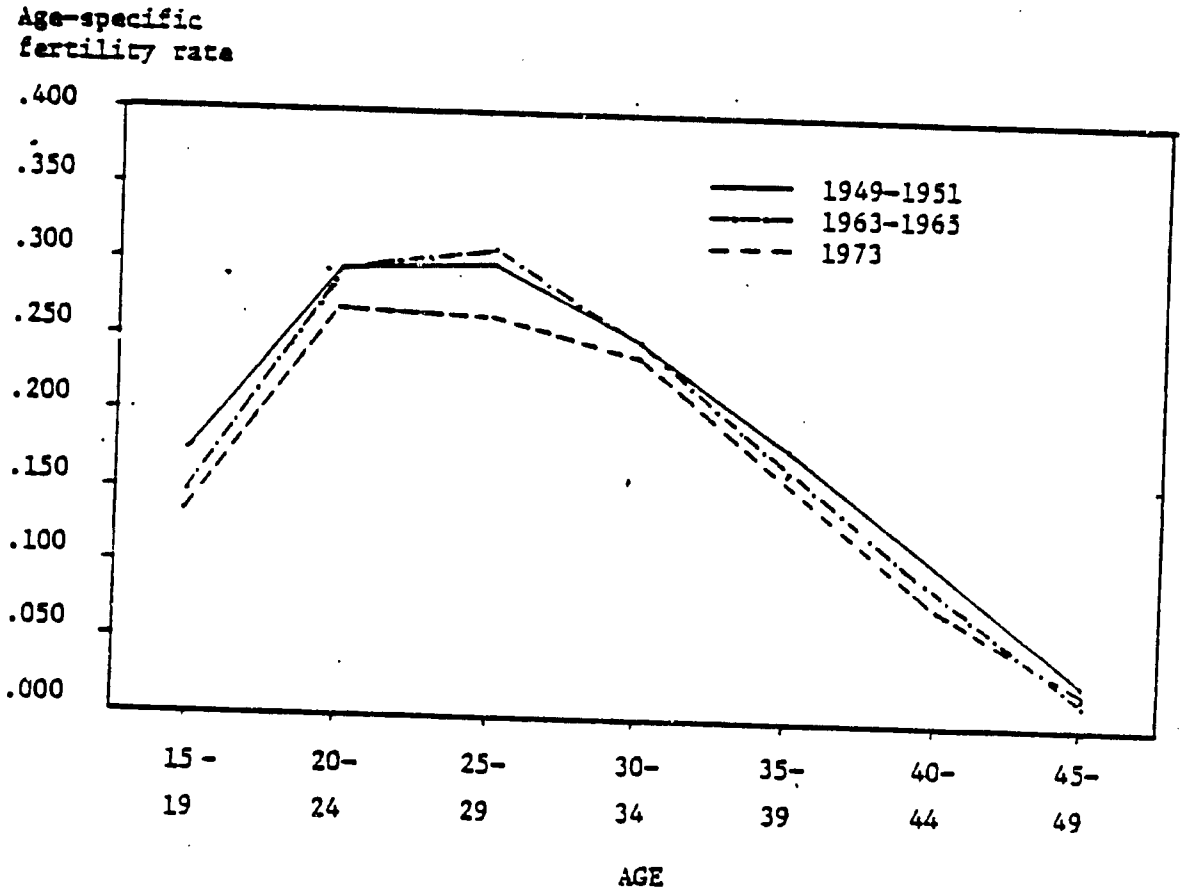
CRUDE BIRTH AND DEATH RATE - GUATEMALA




Source: 1900-59: Collver O.A. Birth Rates in Latin America.
1960-69: United Nations Demographic Yearbook, 1965 + 1970

FIGURE 4.1.3-C

AGE-SPECIFIC FERTILITY RATES, GUATEMALA
1949-1951, 1963-1965, and 1973




Sources: 1949-1951 and 1963-1965: Zulma C. Camisa, Guatemala: Proyecciones de la Población Total, 1965-2000, Centro Latinoamericano de Demografía (CELADE), Series AS, No. 3, San José Costa Rica, 1970, p. 14.

1973: By telephone from Sylvia Quick, International Statistical Programs Center, U.S. Bureau of the Census, Washington, D.C., 1976.

Age Distribution

The age distribution of Guatemala's population has not changed greatly since 1950 according to corrected population figures (see Table 4.1.3-C). In 1973, 44.7% of the population was under the age of 15 and the dependency ratio was 91.9. The urban population is not as young because of lower fertility and the in-migration of young adults. Of the total urban population, 40.4% is between the ages of 0 and 14 years and the dependency ratio is 78.9.

TABLE 4.1.3-C

PERCENTAGE OF POPULATION IN BROAD AGE GROUPS AND DEPENDENCY RATIOS FOR GUATEMALA 1950, 1964 AND 1973

| Age | 1950 | 1964 | 1973 Total | 1973 Urban | 1973 Rural |
|---|---|---|---|---|---|
| All ages | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| 0-14 | 43.4 | 45.6 | 44.7 | 40.4 | 46.9 |
| 15-64 | 53.6 | 51.6 | 52.1 | 55.9 | 50.2 |
| 65 and over | 3.0 | 2.8 | 3.2 | 3.7 | 2.9 |
| Dependency Ratio 1/ | 86.6 | 93.8 | 91.9 | 78.9 | 99.2 |

1/ The dependency ratio is $\frac{P(0-14 \quad P(65+)}{P(15-64)} \times 100$, where P(a) is the population age "a".

Source: 1950 and 1964: Zulma C. Camisa, Guatemala: Proyecciones de la Población Total. 1965-2000, Centro Latinoamericano de Demografía (CELADE), Series AS, No.3, San José, Costa Rica, 1970, page 6, corrected population.

1973: U.S. Bureau of the Census, International Statistical Programs Center, unpublished projections of the population of Guatemala, 1975.

Table 4.1.3-D indicates the percentage distribution by age group in Guatemala. Relative to El Salvador, Panama, and Costa Rica, the percentages for Guatemala are similar, not unexpected for a region with one of the highest birth rates in the world. The projected age group distribution pattern for the years 1980 and 2000 for those under the age of 15 for each of the four countries in shown in Table 4.1.3-E.

TABLE 4.1.3-D

POPULATION IN BROAD AGE GROUPS, 1980-2000 AS PROJECTED BY CELADE

| Age Group | Population | | | Percentage | | |
|---|---|---|---|---|---|---|
| | 1980 | 1990 | 2000 | 1980 | 1990 | 2000 |
| Total | 7,006,019 | 9,200,755 | 11,991,461 | 100.0 | 100.0 | 100.0 |
| 0-14 | 2,999,704 | 3,767,891 | 4,695,416 | 42.8 | 41.0 | 39.1 |
| 15-64 | 3,786,638 | 5,108,699 | 6,806,214 | 54.1 | 55.1 | 56.8 |
| 65+ | 219,677 | 324,165 | 489,831 | 3.1 | 3.5 | 4.1 |

Source: Centro Latinoamericano de Demografía (CELADE), Boletín Demográfico, 9:17 (January, 1976).

TABLE 4.1.3-E

POPULATION PERCENTAGE UNDER AGE 15, PROJECTED FOR 1980 AND 2000 FOR GUATEMALA, EL SALVADOR, PANAMA AND COSTA RICA

| Country | Population Age 0-14 as Percentage of total | |
|---|---|---|
| | 1980 | 2000 |
| Guatemala | 42.8 | 39.1 |
| El Salvador | 45.2 | 41.3 |
| Panamá | 41.4 | 37.2 |
| Costa Rica | 39.2 | 34.0 |

Source: Guatemala, see note, Table 4.1.3-D; for the remaining countries see "Demographic Trends and Urbanization in El Salvador, Table 4.1.3-G.

The very large percentage of population under the age of 15 is unquestionably placing a strain on existing social and economic systems in Guatemala, with implications which are discussed later. This is modified, however, by the fact that the country is still largely rural, and many social and economic functions are maintained, if at all, by the family or community that would otherwise be supported by public institutions in a more urban setting. As seen in Table 4.1.3-E, Guatemala's situation differs little from that of El Salvador or Panama, while the percentage of Costa Rica's population under the age of 15 is lower and should decline more rapidly due to a sustained drop in the birth rate experienced in the last decade.

Table 4.1.3-F provides an age structure comparison of Guatemala with Latin America in general and Argentina and the United States, two countries where a variety of factors have resulted in demographic profiles more typical of economically developed countries in temperate zones. Large proportional variations exist between Guatemala (and Latin America, in general) on the one hand, and Argentina and the United States on the other, in the population group under the age of 15. In comparison to the United States, Latin America is projected to have double the proportion in this age bracket by the year 2000.

TABLE 4.1.3-F

PERCENTAGE DISTRIBUTION OF THE POPULATION IN BROAD AGE GROUPS FOR GUATEMALA, ARGENTINA, THE UNITED STATES, AND LATIN AMERICA IN 1950 AND AS PROJECTED FOR 1980 AND 2000

| | Year and Age Groupings | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | 1950 | | | 1980 | | | 2000 | | |
| Country | 0-14 | 15-64 | 65+ | 0-14 | 15-64 | 65+ | 0-14 | 15-64 | 65+ |
| Guatemala | 43.4 | 53.6 | 3.0 | 42.8 | 54.1 | 3.1 | 39.1 | 56.8 | 4.1 |
| Argentina | 30.5 | 65.3 | 4.2 | 28.2 | 63.2 | 8.6 | 25.0 | 64.5 | 10.5 |
| Latin America | 40.7 | 55.8 | 3.5 | 41.5 | 54.6 | 3.9 | 37.7 | 57.9 | 4.4 |
| United States | 26.9 | 65.0 | 8.1 | 24.0 | 65.1 | 10.9 | 19.1 | 68.4 | 12.5 |

Sources: CELADE, Boletín Demográfico, Issues 7:13 and 9:17. For the United States in 1950, see U.S. Bureau of the Census, Estimates of Population of the United States by Single Years of Age, Color and Sex. 1900-59. Report pages 25-311, July, 1965.

For 1980 and 2000 see U.S. Bureau of the Census, Projections of the Population of the United States. 1975-2050, Report P-25, No.601, October, 1975.

Marital Status

In 1973, 63% of the population over the age of 15 years were married or living in consensual union.

Urban and Rural 1/ Differentials

Table 4.1.3-G indicates the population distribution in Guatemala. The majority (61%) of Guatemalans live in rural communities of 2,000 or less inhabitants.

TABLE 4.1.3-G

DISTRIBUTION OF THE GUATEMALAN POPULATION BY SIZE OF COMMUNITY, 1977

| Community Size | % of Population |
|---|---|
| Less than 500 persons | 34.27 |
| 500-999 | 16.08 |
| 1000-1999 | 10.97 |
| 2000-4999 | 8.33 |
| 5000-9999 | 4.62 |
| 10000-19999 | 3.85 |
| 20000 or more | 21.88 |

It is estimated that 70% of the rural population lives in "difficult access" areas, i.e., they live in communities that can only be reached by foot, mule, or horse. Within the next 30 years it is anticipated that there will be a major shift from rural to urban areas.

Table 4.1.3-H and Figure 4.1.3-D outline the trend toward increasing urbanization. At these rates, by 2000 only 49% of the population will be living in rural areas.

---

1/ Public presentation on population distribution, National Medical Congress, Jaime Solórzano, Director, División de Estadística, Ministry of Health, September 1977.

TABLE 4.1.3-H

CHANGES IN THE PERCENTAGE OF THE GUATEMALAN POPULATION WHICH IS URBAN AND RURAL - FOR THE PERIOD 1950 TO 1985

| | 1950 | 1964 | 1973 | 1975 | 1980 | 1985 |
|---|---|---|---|---|---|---|
| Rural | 69% | 66% | 65% | 63% | 60% | 57% |
| Urban | 31% | 34% | 35% | 36% | 40% | 43% |

Source: CELADE Population Projections, Jorge Arias de Blois, La Población de Guatemala, 1974.

Fertily Rates

Fertility in the urban areas of Guatemala is quite high, although it is somewhat lower than rural fertility. Analysis by the U.S. Bureau of the Census places the urban total fertility rate at 5.32 and the rural TFR at 6.60 in 1973. Based on adjustments of the 1973 census population, it is estimated that there are 855 children aged 0-4 years for every 1,000 females aged 15-44 years in the total population. The ratio is 658 in the urban sector and 972 among the rural population.

Literacy

The percent of literacy has increased dramatically since 1950. However, although the proportion of literate persons has increased more than 50%, the number of illiterate persons has increased from 1.35 to 1.81 million. (Table 4.1.3-I and Figure 4.1.3-E). These figures include all children attending school. Statistics of adult literacy are not available.

TABLE 4.1.3-I

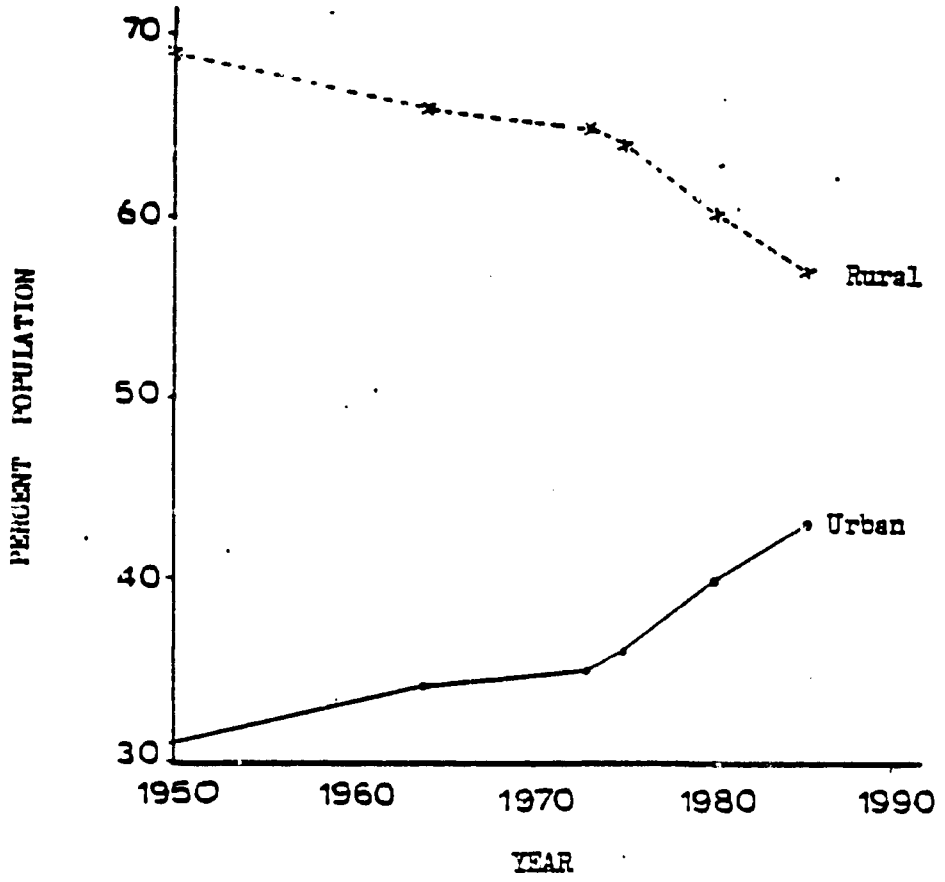
PERCENTAGE OF THE GUATEMALAN POPULATION WHICH IS LITERATE FOR THE PERIOD 1950 to 1973

| | 1950 | 1964 | 1973 |
|---|---|---|---|
| Percentage Literate | 28.1% | 36.8% | 45.4% |

Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

FIGURE 4.1.3-D

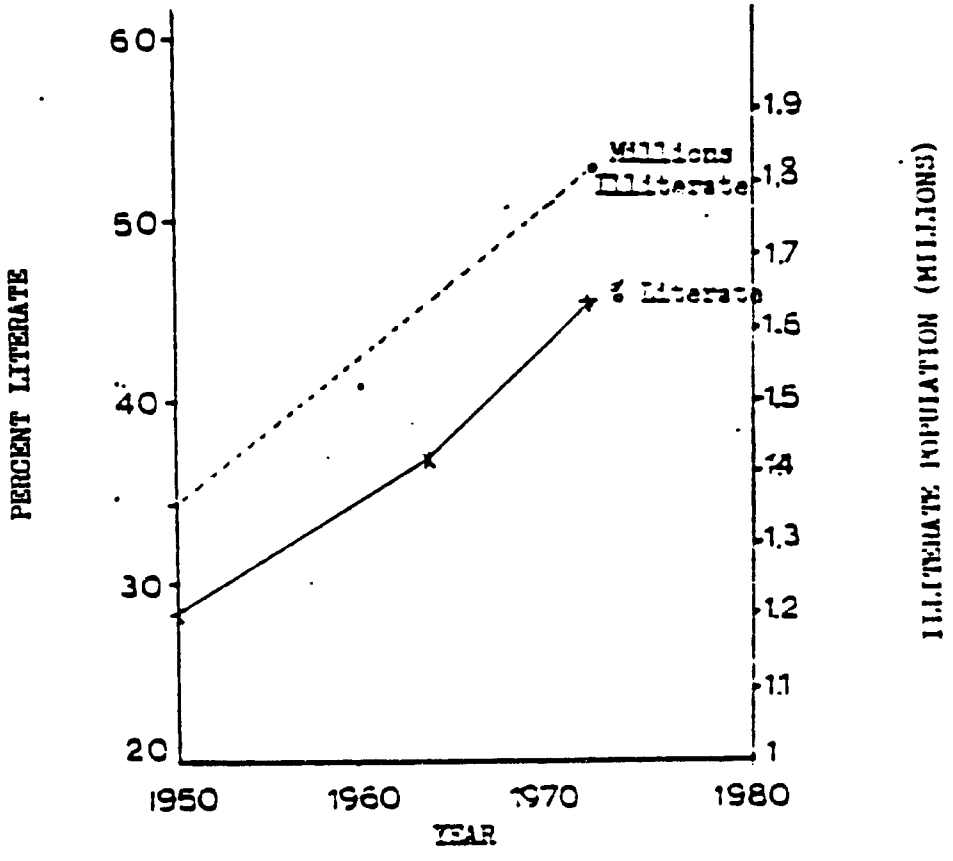
RURAL AND URBAN POPULATION - GUATEMALA




Source: CELADE Population Projections
Jorge Arias de Blois, La Población de Guatemala, 1974.

FIGURE 4.1.3-E

LITERACY - GUATEMALA




Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

Differences Between Indians and Ladinos

Table 4.1.3-J and Figure 4.1.3-F display the changing ethnic profile of Guatemala. A major factor in this change is the transcultural changes in ethnic identity. A contributory factor is displayed on Table 4.1.3-K and Figure 4.1.3-G in which the differential life expectancies are given. Although the gap has narrowed, Ladinos are expected to live 4.4 years longer, on the average, than Indians.

TABLE 4.1.3-J

PERCENTAGE OF GUATEMALAN POPULATION THAT ARE INDIAN OR LADINO FOR THE PERIOD 1950 to 1973

| | 1950 | 1964 | 1973 |
|---|---|---|---|
| | 1,495,300 | 1,808,000 | 2,540,082 |
| Indian | 53.6% | 42.2% | 43.8% |
| | 1,295,068 | 2,479,000 | 3,138,010 |
| Ladino | 46.4% | 57.8% | 56.2% |

Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

TABLE 4.1.3-K

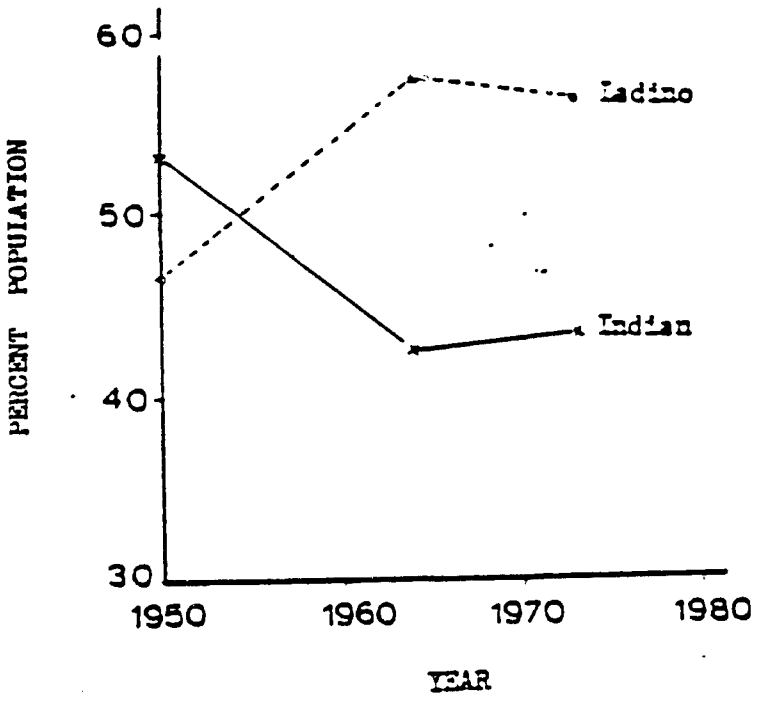
LIFE EXPECTANCY IN GUATEMALA FOR LADINO AND INDIANS 1950 TO 1973

| | 1950 | 1964 | 1973 |
|---|---|---|---|
| Total population | 40.24 years | 48.24 years | 51.94 years |
| Ladino population | 49.7 years | | 54.3 years |
| Indian population | 39.2 years | | 49.9 years |

Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

FIGURE 4.1.3-F

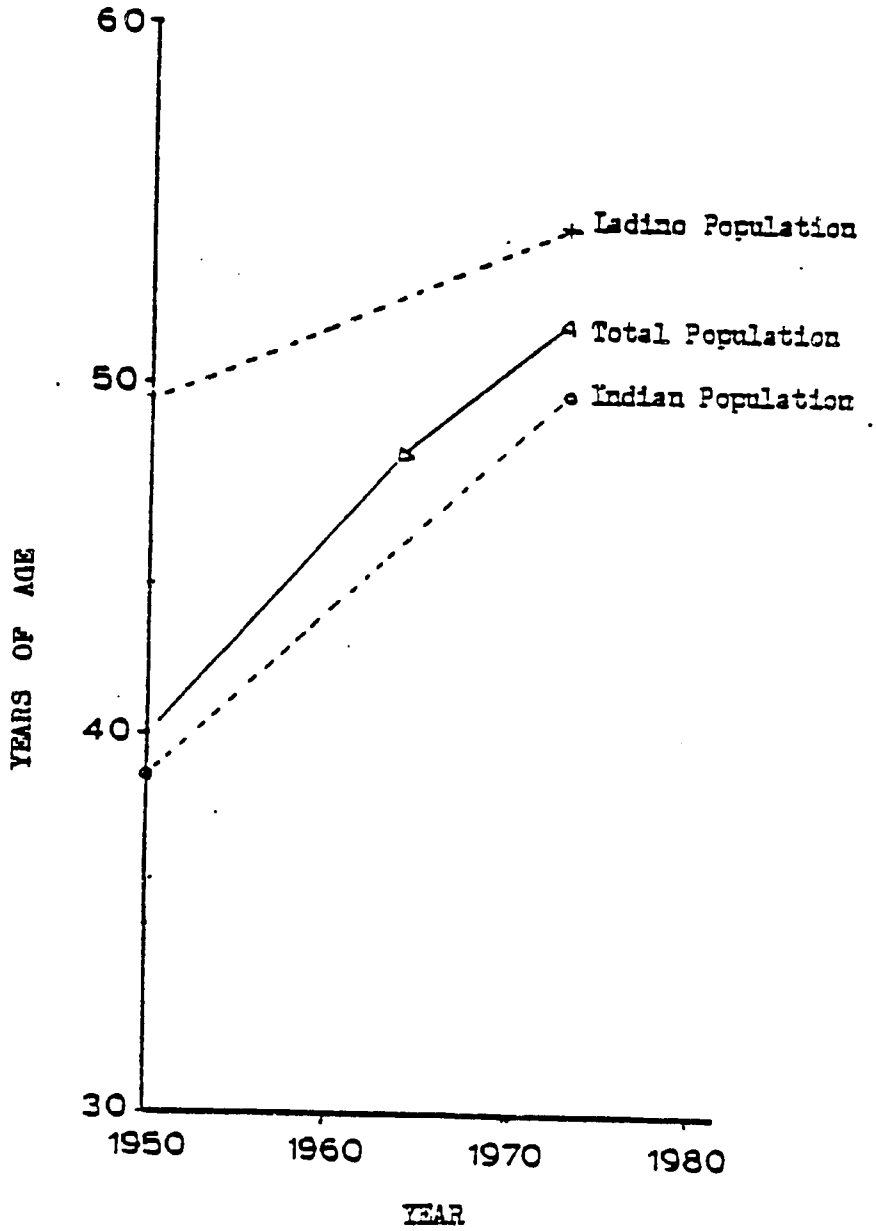
INDIAN AND LADINO POPULATION - GUATEMALA




Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

FIGURE 4.1.3-G

LIFE EXPECTANCY - GUATEMALA




Source: Jorge Arias de Blois, La Población de Guatemala, 1974.

## Impact of Population Growth on Social and Economic Development

### Employment and Underemployment

A 1974 study by Brookings Institute/SIECA on Economic Integration in Central America calculated the rural underemployment percentage in Guatemala by subtracting the number of fully employed workers required to produce the volume of agricultural output actually achieved (taking into account the generally non-mechanized methods of production) from the number of employable rural workers, and came up with the astonishingly high figure of 52.3%. The cost of improving the conditions and to provide new jobs for the expanding population is enormous.

In 1975, 2,838,760 persons between the ages of 15 to 60 years were available in the national labor pool. The CELADE projection for the population of Guatemala in the year 2000 is 12 million persons; this will include approximately 6.5 million persons in the national labor pool. To provide jobs for these new workers necessitate the creation of 3,724,570 new jobs, i.e., in an environment of unrestrained population growth, the current level of jobs will have to be quintupled by the year 2000, to achieve full employment.

### Land Tenure

The amount of available agricultural land will not increase substantially during the next 50 years, the result will be diminishing farmland per capita. For example, although in 1970 there were between 0.6 and 0.7 hectares of agricultural land per capita, if current population growth rates were to remain constant, by the year 2020 there would be only 0.1 hectares per capita. Current estimates for production at the minimal subsistence level in the Western Highlands, require 1.4 to 2.1 hectares per capita.

### Education

The Guatemalan formal education system now matriculates only 46% of the age group between 7 and 14 years. In the Government's Education Plan, 1975-1979, the goal is to increase this percentage to 54% by 1979, to be accomplished more by improved retention capacity than by augmented educational facilities. This modest increase will not have a meaningful impact on reducing the great number of unschooled youth in Guatemala.

The momentum toward a younger population and the unlikelihood for little meaningful change in education levels, indicate that, in the absence of a strong population policy, the Guatemalan education profile will not change appreciably during the remaining 24 years of this century. This will produce increased stress in terms of gross numbers of children seeking admission to the education system. The social and economic implications of this stress are apparent.

It is postulated 1/ that to provide educational facilities to 54% of the school age population, at the current rate of increase, 25,800 new classrooms and 25,800 teachers would be required. At current prices the construction cost of the classrooms, less any of the ancillary facilities such as libraries and kitchens, would total $220,800,000. The recurrent annual cost for teachers would be $38,700,000. Assuming reduced fertility rates these costs could be reduced to $158 million and $30 million respectively.

Health

The burgeoning population growth of Guatemala now places and will continue to place burdens on an already overburdened health service. Chapters 4.4 and 4.6 describe the current and future status of medical professional and auxiliary health personnel. The deficits in housing, potable water, sewage and garbage disposal systems, and measures for control of infectious diseases will become accentuated despite efforts to construct wells and aqueducts.

Malnutrition is likely to remain at a high level (80% of children under the age of 5 years are malnourished to one degree or another). It is estimated that in 1975, approximately 250,000 more malnourished children under the age of five years were malnourished than 25 years ago when the Institute for Nutrition of Central America and Panama (INCAP) began studies leading to the development of the low-cost vegetable protein food supplement, INCAPARINA.

Because of omnipresent malnutrition, infectious diseases, such as measles, that have been controlled or which no longer pose any serious threat to life in the United States, continue to take their toll of children and adults as a consequence of reduced resistance. Likewise, recent data establishing a relationship between malnutrition in the early years of life with permanently reduced mental growth, imply that induced malnutrition, as another consequence of uncontrolled population growth, will result in more people with reduced mental capacity, and thus restrict the potential to respond to education and to hold jobs.

---

1/ Arias, Jorge, La Población de Guatemala, 1974

Worsening conditions in the rural areas consequent upon deforestation, soil erosion and population growth provide a 'push' for the poorest members of the rural populace to migrate to the larger towns and to the Capital City. This tendency creates the 'septic fringe' that surrounds Guatemala City which is increasing at the rate of approximately 5% per year. In these slums, which lack even the most elementary sanitary facilities, infectious diseases, including venereal disease, rage with little restriction. Government vaccination campaigns have to some extent controlled the prevalence of measles, poliomyelitis, diphtheria and whooping cough in children under 5 years of age. However, parasitism; gastro-intestinal and pulmonary diseases, including tuberculosis are virtually uncontrolled. Thus there exists a series of permanent endemic foci that have the potential, at any moment, for the creation of widespread epidemic outbreaks. The conditions exist, not only for dissemination of the diseases now present, but for the introduction and spread of others, including typhoid fever.

The following table was generated to display one projection of future personnel and facilities requirements.

TABLE 4.1.3-L

HEALTH SERVICES IN GUATEMALA, 1965 AND PROJECTED 2000
TOTAL PERSONNEL AND FACILITIES REQUIRED
(Thousands)

| | | Constant Fertility | | Declining Fertility | |
|---|---|---|---|---|---|
| | 1965 | Fixed Level of Services | Improving Services | Fixed Level of Services | Improving Services |
| Physicians | 0.8 | 2.5 | 6.2 | 1.7 | 4.2 |
| Nurses | 0.4 | 1.2 | 2.5 | 0.8 | 1.7 |
| Nurse Auxiliaries | 2.0 | 6.2 | 12.4 | 4.2 | 8.4 |
| Technicians | 0.4 | 1.2 | 2.5 | 0.8 | 1.7 |
| Hospital Beds | 9.8 | 31.0 | 62.0 | 21.1 | 42.2 |

These figures are provided for illustrative purposes only to highlight the differences in resources required for constant as opposed to declining fertility.

Data on numbers of medical personnel and hospital beds per 10,000 population in 1965 were obtained from an OEECA-CELADE report 1/ and checked against U.N. data on numbers of physicians and hospital beds for 1964. 2/ The category "Technicians", includes sanitary engineers and inspectors, laboratory chiefs, and technicians.

Improving services are represented by a modest increase of 10 per cent every five years in the number of medical personnel per 10,000 population, and by doubling of the number of hospital beds by the year 2000.

Environmental Impact of Population Growth

The effect of population growth on the environment is most clearly seen in the western highlands region of the country where the population pressure on the available land has resulted in severe soil erosion due to cultivation of increasingly steeper slopes and an almost complete lack of sound soil conservation methods. In a study prepared for the National Economic Planning Council in 1974, projections based on the 1950 and 1964 agricultural censuses indicated that the number of small farms in the western highlands was increasing at an annual rate of 1.7% while the amount of land in farms was decreasing at the rate of 0.2% per year. With this increased pressure on the land, over-cropping and cultivation of marginal lands (steep slopes) has resulted in greatly increased soil loss through sheet, rill and gully erosion. For example, in a study conducted in the Santa Cruz del Quiché area, one of the most densely populated areas of the highlands, it was determined that up to 34 metric tons of soil per hectare are lost to erosion each year. The resultant siltation of rivers and irrigation canals on the south coast also pose serious problems for farms in that area.

With the scarcity of available arable land in much of Guatemala, there has been increased movement of farm families to the Northern area of the country (the Petén) where indiscriminate removal of ground cover and intensive farming of lands unsuited to such use have caused severe damage to the environment.

---

1/ Paredes, Dr. Juan Allwood, Los Recursos para la Salud Pública en Centro América, 1965-1980, July 1967.
2/ United Nations, Statistical Yearbook, 1966.

Many of the adverse environmental practices in the rural Guatemalan villages are the direct result of the villagers' socio-cultural limitations, the pressures of subsistence economics and the absence of village management of its natural resources. The combination of excessive population increases and relatively little net out-migration has forced most of the villagers to remain at subsistence levels and satisfy their increasing needs through expansions into more marginal hillside swidden agriculture.

## 4.1.4 Family Planning in Guatemala

### Problem Analysis

Receptivity and Demand. The greatest single indicator of the desire of Guatemalan women to limit their fertility is the high abortion rate. From 1965 to 1972 one patient was hospitalized for complications following induced abortion for every five to seven obstetric deliveries in the Guatemalan Social Security Institute (IGSS) medical system. APROFAM, the Guatemalan affiliate of the International Planned Parenthood Federation, is currently conducting a study to estimate this rate through inferences from the number of women hospitalized due to induced abortion complications.

A recent study of incomplete abortions in Guatemala City cites that 50% of maternal mortality in the city is due to induced abortion and that 20% of the total hospital obstetrics budget is used to treat these cases. The 678 women in the study group required a total of 830 days of hospitalization and 61 needed transfusions.

Table 4.1.4-A illustrates additional study data.

NUMBER AND PERCENTAGE OF PREVIOUS ABORTIONS OF WOMEN IN THE STUDY SAMPLE

| Previous Abortions | Number | Percentage |
|---|---|---|
| 0 | 448 | 66.1 |
| 1 | 163 | 24.0 |
| 2 | 39 | 5.8 |
| 3 | 18 | 2.7 |
| 4 | 5 | 0.7 |
| 5 | 5 | 0.7 |

It appears that abortion is being used as a way to limit family size in spite of its dangers. Of the total respondents in the survey, 90.1% reported that they had not been using contraception. Subsequently, the figure for this group dropped to 43.5% based on follow-up interviews subsequent to their hospitalization.

Receptivity of Target Population. Various studies have been conducted on the receptivity of potential family planning program users. 1/ One of the most current KAP (Knowledge, Attitude

1/ The current studies are summarized in Annex 5.17: Family Planning Bibliography.

and Practice) studies was conducted by APROFAM in 1976 with the assistance of the University of Chicago. The rural study population had the following characteristics:

| | |
|---|---|
| Sex distribution: | 284 men, 282 women |
| Cultural distribution: | 34.9% Indian, 64.6% Ladino |
| Language: | 65% Spanish, 16.6% Quiché, 16.2% Kekchí |
| Literacy: | 38.9% |

Tables 4.1.4-B and 4.1.4-C summarize some study results.

TABLE 4.1.4-B

KNOWLEDGE, ATTITUDE AND PRACTICE OF FAMILY PLANNING FOR LADINO, INDIAN AND TOTAL STUDY POPULATIONS

| | Ladino | Indian | Study Total |
|---|---|---|---|
| Had heard of family planning | 94.2% | 35.6% | 63.8% |
| Favored family planning | 69.4% | 22.8% | 57.8% |
| Current Contraceptor | 9.9% | 2.6% | 7.3% |

TABLE 4.1.4-C

ATTITUDES TOWARD FAMILY PLANNING AND MOTIVATION TOWARD FERTILITY MEASURED ON A FIVE-POINT SCALE

| Attitude toward Family Planning | | Motivation Toward High Fertility | |
|---|---|---|---|
| Strongly favor | 54.2% | Strongly against | 49.3% |
| Somewhat favor | 10.4% | Slightly against | 4.3% |
| Neutral | 5.4% | Neutral | 19.7% |
| Somewhat against | 8.2% | Slightly favor | 9.1% |
| Strongly against | 21.8% | Strongly favor | 17.1% |
| Total | 100.0% | Total | 100.1% * |

(* Note - error in total column.)

The 42.2% of the study population (Table 4.1.4-B) not in favor of family planning gave the following reasons:

1. 61.3% - it is a sin or against God's will.
2. 12.3% - it is bad for a woman's health.
3. 6.8% - a woman must have all the children God sends.

Availability of service (or knowledge of that availability) appears to be a problem in that 45% of the survey group said they would go to a health center for family planning services, but 78% stated that no health services were available in their community. Only 3.5% of the population stated that family planning services were available at a health clinic. This might reflect either actual lack of services, or lack of knowledge of their availability.

Over two-thirds of the study group (68.6%) wished to receive additional information on family planning through either a home visit (95.6%) or a public meeting (82.6%).

In summary, this study shows a rural population aware of family planning (63.8%), in favor of family planning (57.8%), but who are not in fact currently using a method (92.7%). This disparity between knowledge, attitude and practice appears to be related to:

1. Religious beliefs
2. Fear of adverse effect on health
3. Lack of knowledge of availability of clinic services
4. Lack of specific and accurate knowledge of contraceptive methods

The ethnic composition of family planning acceptors in Guatemala has remained relatively unchanged since 1971; approximately 12% are Indian, 88% Ladino. The MOH family planning clientele is about 19% Indian while the APFOFAM clientele, reflecting location of clinics only in Guatemala City, was approximately 4% Indian during the years 1971-1974.

The contraceptive mix currently in use is:

| | |
|---|---|
| Oral contraceptives | 70% |
| IUDs | 23% |
| Injectables | 4.5% |
| Others (including condoms) | 2.5% |

Of the acceptors, 97.6% were either legally married or living in consensual union.

Referrals are principally from women using services. Of new acceptors, 40% were referred to clinics by women already receiving family planning services in the program; 22.2% were referred by auxiliary nurses, and 11.7% by community health promoters.

Family Planning Activities in Guatemala Through 1976. The receptivity to family planning described above provides a backdrop for a historical overview of family planning activities in Guatemala.

As indicated in Part 4.1.3 (Demography), for a variety of reasons Guatemalans are living longer than ever before. Infant mortality has declined and adult life expectancy has increased. However, birth rates have remained relatively stable. The situation was technically described in 1975 by John D. Early: "Guatemala has completed 91.1% of its mortality transition but only 24.6% of its fertility transition". 1/ As a consequence, Guatemala is experiencing a high rate of population growth. Although many government officials are privately supportive of family planning, few have ventured public support for a program or have tried to influence top level decision-makers. Family planning activities have been hampered by the lack of high level government support since the inception of private and public programs in the late 1960's.

An early draft of the "Plan Nacional de Salud" prepared by the National Planning Council included a reference to the problems caused by excessive population growth and set the goal of 15% coverage of women in the fertile ages with family planning services and incorporation of training in family planning techniques in all professional and non-professional training programs. These sections were later deleted in the final draft of the Plan.

The following sections describe past public family planning programs operated by the MCH, the private family planning program operated by APROFAM, and the integrated program in which both the MCH and APROFAM participate.

---

1/ The experience of developed countries gives rise to the theory of the demographic transition which holds that societies tend to move through three distinct demographic stages: 1) high birth rates and high death rates, resulting in near stationary populations; 2) high birth rates but declining death rates, producing growing populations; and 3) low birth rates and low death rates, re-establishing near stationary populations.

APROFAM Program - In 1962 a visit by an International Planned Parenthood Federation (IPPF) representative stimulated a series of informal meetings in the public and private sectors to discuss problems relating to rapid population growth and the need for family planning. Two years later APROFAM (the Family Welfare Association) was founded as an IPPF affiliate and received legal status as a non-profit social organization in the same year. In 1965 clinic services were initiated in Guatemala City and 1,661 new acceptors were enrolled. The first open opposition to the program appeared that year.

In 1967, APROFAM expanded its services outside of Guatemala City by opening clinics in rural towns. As will be noted below, these were taken over by the MOH in 1973. At present APROFAM operates clinics only in the Capital.

APROFAM's increasing expertise and experience in the family planning field led to the adoption of a number of joint MOH-APROFAM programs with the objective of introducing family planning activities in public health facilities in rural areas. These are described below.

MOH Program - In 1967, a funding agreement was signed between the Government of Guatemala, APROFAM and USAID whereby APROFAM would assist the MOH in expanding family planning services to 40 MOH rural clinics and 16 mobile units. The Agreement subsidized vertically-organized family planning activities in these clinics, including extra pay for clinic personnel to compensate for the additional workload. However, problems developed overtime as the program became identified as an "outside"one, and it became increasingly difficult to relate the added personnel costs to actual levels of participation in the program by users. Attempts to negotiate higher MOH salaries for clinic personnel were not successful, and the agreement was terminated in 1970 with a comensurate, precipate drop in user levels.

In an effort to develop an alternative approach, the GOG, in 1970, agreed to create an "integrated office" with APROFAM within the Maternal and Child Health Division of the MOH. This office was designed to coordinate family planning activities such as training, information and education, supervision and evaluation. A board of directors was created with MOH and APROFAM directors who approved all expenditures. The office was funded under successive agreements with USAID through 1975.

At the same time, the GOG undertook to expand the number of rural health posts and centers offering family planning services. To assist, special auxiliary nurses were hired by the MOH with USAID funding, and training was provided by APROFAM. These personnel were assigned family planning responsibilities but were also expected to do the same work as other clinic nurses. There was no differentiation as to salary or status. These auxiliary nursing positions were gradually absorbed by the MOH over a four year period ending in 1975; but once transferred, it was found that the nurses no longer carried on family planning activities. Again, the fact that the Ministry did not establish family planning as a priority was a major factor in the lack of follow-through.

As part of the overall agreement, APROFAM transferred to the MOH its clinics located outside of Guatemala City because it was clear that a nationwide clinical service program not utilizing MOH facilities would create an extremely costly, parallel rural health system which would compete for available health personnel. With the transfer of the clinics, new acceptor and continuation rates began to fall until they reached levels equal to or below those of an average MOH clinic.

In many ways, however, the Integrated office worked well. APROFAM was able to provide special training courses for almost all clinic personnel and was able to lend professional expertise and guidance to the program. However, at the clinic level, only 126 clinics were incorporated in the program after four years (out of a possible 450) serving about 20,000 new acceptors per year and only 3,000 active users or 1.7% WIFA. As a result, the USAID reduced its support by 40% in FY 1975 and by mutual agreement, terminated all financing in FY 1976. It was clearly evident by that time that without top-level support, clinic personnel were not going to devote the time necessary for an effective program. For instance, at some clinics inappropriate scheduling of family planning activities is a strong deterrent to potential users, and even though the Ministry abolished the concept of specific hours for specific treatment at clinics in 1973, a 1976 survey indicated that as far as a family planning was concerned, only 35% of 50 clinics surveyed offered services whenever requested during the day. In 15%, family planning services were offered only one day per week. The net result was that the rate of new acceptors was remaining static, as was the number of continuing users.

<u>Current Family Planning Activities</u> - With termination of the joint MOH-APROFAM program, APROFAM requested funding from USAID

for a number of continuing and new programs. An agreement was signed in January, 1976 covering the following activities administered by APROFAM:

1. Clinical Services. At present APROFAM operates five clinics in Guatemala City of which two carry 85.1% of the clinic load. During the first six months of 1977, the five clinics attended 33,480 contraceptive users, of which 5,685 were new acceptors.

2. Direct Distribution to MOH Clinics. Under an agreement with the MOH, APROFAM supplies contraceptives and family planning technical-medical information and promotional materials directly to MOH area health offices, health centers and posts for their use in providing family planning services. The MOH provides clinical supplies, information and, when necessary, clinical services. The entire country is covered by this system, except for Guatemala City which is served directly by APROFAM. The project began in May, 1976, with the training of field personnel. Thirteen months later, 324 of the 500 clinics to be included had been incorporated into the program. The remaining 176 will be incorporated progressively by January, 1978.

3. Community-Based Distribution. A program designed to provide contraceptives with a minimal amount of clinical backup was initiated in Guatemala City in October, 1975. By June 1977, 7,713 people had enrolled.

4. Campesino Leagues (Ligas Campesinas) Direct Distribution. In May, 1976, a pilot project was started among 45 campesino leagues with approximately 4,000 members. After a series of weekend community meetings, the project was accepted by the national federation of campesino leagues and the communities. The distribution of contraceptives began in October, 1976, and eleven communities presently participate.

5. Ministry of Defense (MOD) Program. This program is designed to train military personnel to teach family planning concepts and techniques to military families, to train MOD personnel in 48 clinics, and to provide contraceptives. The program got underway in June, 1977, with initial discussion groups totalling 1,211 persons.

6. Information, Education and Communication. APROFAM has initiated two information, education and communication (IEC) programs, a multimedia communications project, and a person-to-person communication project at the community level.

a. The multimedia project focuses on the development and presentation of radio, television, and newspaper messages, which vary with the social and ethnic group to whom the message is directed.

The initial phase of the multimedia communication project was designed to focus on the development, testing, and evaluation of family planning messages to be broadcast on the radio. The messages have been pretested on a sample of the target population. Both the messages and the pretest questionaires have been translated into Indian languages when appropriate. Results of the preliminary analysis indicate an overall, favorable response, and the messages have been broadcast. A program to test response to the messages over time has been developed. Another survey has been designated to test the response of the rural population of an illustrated family planning leaflet.

b. The person-to-person communication project is an experimental, two-year effort involving personnel at the community and clinic level. Four community volunteers are recruited for each health center or health post participating in the project. Their activities include talks on family planning and organization for distribution of contraceptives in communities served by these facilities.

Other APROFAM Activities. In addition to the above, APROFAM carries out a number of activities funded by various international organizations and internally generated funds:

1. Voluntary Surgical Contraception. APROFAM operates a surgical contraception program at one of its five clinics and helps support similar programs at an IGSS hospital and at Roosevelt Hospital. From August, 1973, to December, 1976, APROFAM reported a total of 2,334 surgical interventions done at its surgical center.

2. APROFAM provides family planning information and assistance under arrangements with a number of associations such as cooperatives, the pharmaceutical organization, the Coffee Growers Association, and the Cotton Growers Association. The majority of the support for these activities comes from IPPF, but APROFAM also receives specific grants from FPIA, AVS, Pathfinder Fund, World Neighbors and various other donors. The total amount of this support is approximately $600,000.

## The Involvement of Other Institutions in Family Planning

### 1. Del Valle University

In August, 1968, the USAID made an initial grant to the Del Valle University to collaborate with the Ministry of Education in the development of a national human development curriculum for primary schools. Training was included for primary, secondary and normal school teachers, and a school curriculum which incorporated subject matter on human development was developed, tested and evaluated. When the project ended in January, 1976, over 3,200 teachers had been trained and curricula and teacher guides developed for kindergarten, the six primary grades and the three grades of junior high school.

### 2. INCAP (Institute of Nutrition of Central America and Panama)

INCAP during the past several years has engaged in research related to family planning activities and intends to continue this activity. Proposed activities include studies on the effects of lactation on birth-spacing and contraceptives, proposed for 1978; and an evaluation of the degree and types of integration of nutrition, maternal-child Health care and family planning activities in Central America and Panama. The Institute has a sociologist-demographer on its staff who is involved in studying demography as it relates to nutritional status.

### 3. University of San Carlos Medical School

Historically, the Medical School has been strongly opposed to adoption of a national family planning program by the Government of Guatemala. This opposition is based on nationalistic, political and economic grounds. No training in family planning theory or thechniques is offered by the school. However, the Supervised Professional Practice (EPS) program, initiated in 1974, which requires senior medical students to spend six months working in rural health centers or health posts, has exposed medical students to the realities of the rural areas and has converted some students into family planning advocates. In their written termination reports an increasing number of these students are requesting that training in family planning be included in the medical school curriculum.

4. The Catholic Church

Open opposition by the Catholic Church to the family planning program began in 1965, the year APROFAM opened its first clinic, with publication of a pastoral letter denouncing the program and the use of artificial contraceptives. Between 1965 and 1974 periodic Church announcements, decrees, and pastoral letters were issued reiterating its opposition. On Assumption Day, August 15, 1974, a pastoral letter was issued in anticipation of the Bucharest Population Conference which attacked the concept of correlating foreign aid to a country's efforts in population control. This statement was not based on fact. Neither USAID nor other major donors have such a prerequisit for providing economic assistance.

Local church opposition has aroused heated discussions in several areas of the country. In one highland community women in the program were rebuked from the pulpit. Despite the opposition, the program in this village continues to function well, and the number of new acceptors is increasing. This kind of local parish opposition does not appear to be widespread.

A study done by the Instituto Centroamericano de Población y Familia (ICAPF), published in 1969, indicated that 60.6% of the urban and rural Ladino sample group, and 81% of the Indian group are unaware or unable to state the Church's position regarding contraceptives.

In 1972 a study by INCAP in the eastern part of the country reported that religion was not considered a determining factor in attitudes, knowledge and practice relating to the use of contraception in that area.

While the church's opposition has had a strong negative impact on the Government of Guatemala's willingness to articulate a national population policy, it is not clear to what extent its influence has impacted on individual family planning acceptance. It can be expected to exert significant negative motivation for those with deeply-felt religious conviction.

5. IGSS (Guatemalan Social Security Institute). In 1965 IGSS opened a small family planning clinic in Guatemala City which handled 460 referrals during its first year of operation. By 1968 the clinic had grown to the point that the IGSS management, concerned about possible adverse public attention, cut back on services. At present no routine family planning counseling is offered at IGSS. A patient must request referral or be

diagnosed as being in a high-obstetric-risk category before family planning assistance is provided.

Since 1963, IGSS has offered a surgical contraceptive service which has expanded over the years. In early 1977, in response to attacks from the press, these services were temporarily suspended; after four months, services were resumed at lower levels of activity.

Program Coverage. Statistics available for the MCH and APROFAM combined program indicate that as of January 1, 1976, 33,869 women, or 2.6% of women in the fertile age, were actively participating in the combined program. This figure does not realistically reflect the actual situation for two reasons:

1. It does not account for women contracepting outside of the program, or women who initially started in the public program but who now receive contraceptives through a private source.

2. Under-registration of users at MCH clinics could add a 20% to 40% increase in the number of contraceptors.

Since 1971 the sale of oral contraceptives in pharmacies has increased by 85%. Using the sales of both oral and injectable contraceptives, it is estimated that in 1976, 50,455 women, or 4% of the women in the fertile age, were contracepting through the private sector.

Ignoring the 20 to 40% under-count in MCH clinics, the contracepting rate of women in the fertile age would then be 6.5%.

The number of women in need of public services is composed of those who are sexually active, not contracepting through the private sector, and not pregnant or seeking to become pregnant. According to latest estimates, 43% of the women in child-bearing age are potential clients. If 1977 estimates of women in the fertile age are used, a figure of 602,000 potential clients is derived.

Population Family Planning Surveys-underway or projected

1. World Fertility Survey.

In relation to the planned "World Plan of Action" (drafted and approved at the United Nations World Population Conference in Bucharest in 1974) the Guatemalan Directorate of

Statistics and Census has been negotiating with World Fertility Survey (WFS) officials concerning its participation in the program. Current plans are to implement the survey in 1979 using a national sample of approximately 3,500 people.

2. Hospitalized Abortion

APROFAM is currently conducting a study, with technical assistance from the International Fertility Research Program, to document the rising incidence of hospitalization due to induced abortion. The study will look at the rate of increase of hospitalization following induced abortion, the age and parity of women being admitted to MCH hospitals following abortion, the number of days of hospitalization required, and costs in terms of hospitalization required, and costs in terms of hospital staff time, bed time and medicines.

3. Population and Development Seminar Recommendations

A two-day seminar on Population and Development held in Guatemala on March 31, 1977, generated requests by the GOG to IPPF to fund studies of women with high obstetrical risk, infant mortality, status of younger children in larger families, characteristic of female-heads of household, migration patterns and the impact of unchecked population growth on the environment. Negotiations are underway with IPPF for financial support for these studies.

4. MCH Clinics and Communities' Research

Some of the 324 Ministry of Health clinics that currently provide family planning services are working efficiently and attending a large number of women, and some are doing very little. Surveys of clinic management and organization factors which influence high and low productivity will be carried out through APROFAM.

5. Measurement of Contraception Prevalence

Current information on contraceptive use at the national level, derived from family planning service statistics and limited surveys, is unreliable and incomplete. Because results of the World Fertility Survey will not be available until 1980, a nationwide study will be performed during 1978 to measure the current prevalence of contraceptive use.

General Conclusions

In order for a country to achieve a perceptible decrease in its birth rate, 20 to 30% of the women in the fertile age must be actively contracepting. This requires that contraception must be available and utilized, which in turn requires a strong national family planning program with the following characteristics:

1. Public support from top-level leadership;

2. Trained personnel and adequate clinic facilities;

3. High motivation of program users.

In two of Guatemala's neighboring countries, El Salvador and Mexico, strong family planning programs became possible only after top political leadership publicly recognized the inhibiting relationship between high fertility and economic and social development. Once the problem was elevated to a level of a national concern, progress was rapid in defining a population policy, gaining the support of business and government leaders, and providing services. This process has not ocurred in Guatemala, with the result that no national population policy or effective public sector family planning program exists. However, a strongly supportive Ministry of Health, even in the absence of an officially stated population policy, could increase substantially the number of active users over current levels. The following recommendations have been developed based on the foregoing discussion.

Recommendation 1: THE GOVERNMENT OF GUATEMALA SHOULD ESTABLISH A NATIONAL POPULATION POLICY

The government has on two separate occasions made efforts, without success, to formulate an official population policy. This policy formation must be totally a Guatemalan effort; however, until such a policy exists, an effective program which makes efficient use of public and private resources will not be forthcoming. In the absence of a policy, international donors should review carefully any proposals for a public family planning program, given implementation experience over the past 10 years.

Recommendation 2: Until the Government of Guatemala initiates an active and effective family planning program, donors should continue, with the concurrence of the GOG, to support the efforts of APROFAM to deliver family planning services through public health facilities to those Guatemalans who want them. When the Government of Guatemala initiates an active family planning program, donors should support the government efforts as needed, but may wish to continue their support of APROFAM for research and evaluation, training, and services to the private sector.

Recommendation 3: International donors should continue to support seminars for leaders in government and industry on the implications of population growth as it impacts on development efforts, as well as on the economic and social aspirations of the country.

Recommendation 4: Family planning subject matter should be included in the curricula of the medical school, the nursing school, and all other institutions which provide pre-service and in-service training for health personnel.

Recommendation 5: All paramedical personnel, including rural health technicians (TSRs) after receiving training in family planning concepts and technology, should be permitted to deliver non-clinical contraceptives. Graduate nurses, auxiliary nurses, and female TSRs when trained, should be allowed to insert IUDs under the supervision of a physician.

The expansion of the MOH rural health outreach system staffed by TSRs and auxilliary nurses represents a significant potential for expanding family planning services. The TSR receives approximately 400 hours of instruction in demography, sex education, family planning and reproductive physiology. The current agreement between APROFAM and the MOH for stocking rural health centers and post ensures the availability of contraceptive supplies. However, under existing MOH norms, the paramedical personnel, including TSRs, are not allowed to distribute these supplies; thus foregoing a significant opportunity to provide family planning services to rural inhabitants.

Recommendation 6: Alternatives to clinic-based delivery systems for family planning services should be explored.

Innovative approaches for consideration include commercial distribution through village stores, and household and village distribution through cooperatives, campesino organizations, and

other rural based groups. Experience in other countries, such as Colombia, indicates that when such alternatives are utilized the availability of contraceptives is increased in a relatively inexpensive manner.

Recommendation 7: A follow-up should be instituted to maximize the use of the human development primary curriculum, teachers' manuals and didactic materials in the public and private school system prepared by the University of Del Valle.

## 4.1.5 Communicable Disease Control 1/

### Problem Analysis

The five leading causes of death in Guatemala, indicated on Table 4.1.5-A, can be attributed to four classes of communicable diseases: vaccine-preventable diseases, diarrheal diseases, micro-bacterial diseases and parasitic infections.

TABLE 4.1.5-A

LEADING CAUSES OF MORTALITY, NUMBERS AND RATES PER 10,000 WITH PERCENTAGE OF TOTAL DEATHS *
1973

| | | Number | Rate per 10,000 Inhabitants | Percentage of all Deaths |
|---|---|---|---|---|
| 1. | Acute Respiratory Diseases and Pneumonia | 14,593 | 25.4 | 20.8% |
| 2. | Diarrhea Syndromes | 13,063 | 22.7 | 18.6 |
| 3. | Nutritional Deficiencies | 4,783 | 8.3 | 6.8 |
| 4. | Diseases of the Puerperium | 4,228 | 7.4 | 6.0 |
| 5. | Intestinal Parasitism | 2,306 | 4.0 | 3.3 |
| | | 38,973 | 67.8 | 55.5% |

* Statistics based upon medically certified deaths which represent 20% of all deaths.

Source: Unidad de Planificación y Estadística, 1973.

---

1/ See Annex 5.5; Communicable Disease Control for a more detailed analysis of the problem and the proposed programs described here.

Epidemiological Surveillance

Rapid response and evaluation at a central level depend on accurate disease reporting, and basic health data at the local level is important for program planning and feedback to the health care provider. The disease-surveillance system in Guatemala has major shortcomings. That diseases are under-reported through both epidemiology and laboratory channels is recognized by the MOH. The amount of under-reporting is unknown but the Public Health Division, USAID/G, feels that it is significant.

The principal disease-surveillance shortcomings stem from fundamentally inappropriate and inadequate administrative procedures. Organizationally, the Ministry of Health, Division of Statistics, administers all data-gathering with little input from the Division of Epidemiology for the evaluation or improvement of the system. Additionally, morbidity data are complicated by the fact that death is reported independently from illness, and less than one-third of all deaths are certified by medical personnel. For example, in 1974 more deaths due to malaria were reported than the actual number of malaria cases. To date, mortality data have not been included in routine disease surveillance.

While administrative weaknesses in disease surveillance are key constraints to more effective disease control, so too is an inadequately functioning laboratory network. Several general problems which exist with respect to the function of laboratories are:

1. An inadequate system of laboratory organization to regulate the flow of information, quality of service, and training of personnel.

2. An inability to modify the present system due to budget limitations which affect both staffing and the supply of basic materials.

The critical requirement for laboratory services in diagnosis and disease surveillance will not be met in Guatemala by the expansion of laboratories to all health centers. The present deficiencies will be corrected only by the development of a systematic specimen-referral network from the local level to regional laboratories. Such a network is being studied by the Ministry of Health but its implementation is far from assured.

Diarrheal Disease

Enteric infections may be transmitted either by non-potable water or fecal-oral contamination. In Guatemala, as in other

countries where adequate water and sewerage facilities are not available to a majority of the population, diarrheal illness constitutes a principal cause of morbidity and mortality, which are greatest in children under five years of age.

Three alternative strategies for control of diarrheal illnesses have been evaluated for their feasibility in Guatemala:

1. Immunization. Typhoid is the only diarrheal disease for which an effective vaccine is available. As a control methodology for endemic transmission, typhoid vaccination is neither logistically nor financially feasible.

2. Environmental Sanitation. Environmental sanitation and public education are pre-requisites to the prevention of childhood diarrhea, a result of inadequate water, poor waste disposal and parental ignorance of basic hygienic principles. Many studies have investigated the results of improvements in some or all of these variables, but it remains unclear if a single intervention, such as provision of latrines, is crucial to breaking the cycle. Perhaps only general community development will produce permanent improvement in morbidity and mortality due to diarrhea.

3. Early detection and therapy. Antibiotic therapy is generally of limited importance in the treatment of non-specific diarrhea. The National Plan for Health, 1975-1979 recognizes that prompt diagnosis, and adequate treatment to correct dehydration and electrolyte losses, dramatically reduce child mortality due to diarrhea. The program outlined in the National Health Plan has been strongly supported by WHO/PAHO. A delivery strategy for rehydration centers has been proposed and field-tested. The success of such services depends heavily on access at the local level and the education of parents about the benefits of such therapy. Extensive application of rapid rehydration would have considerable public health impact in Guatemala.

Unfortunately, the multitude of physiological, economic, and environmental factors which enter into the diarrhea equation are paralleled by a similar multiplicity of cultural responses. Perceptual differences exist between Indian and Ladino populations with regard to the importance of diarrhea as both a symptom and an illness. The consequence is a treatment response in which different solutions are sought for each of these medical problems, particularly in children.

The Ministry of Health plan for the establishment of a network of rehydration centers, while an important step, will be only a temporary measure if the opportunity is not used to educate the mothers involved and to improve the sanitary environment whenever possible. Pre-planning for this program should include the examination of experiments in India, Mexico, El Salvador and Nicaragua, which use homemade fluids for electrolyte replacement as well as of the potentially crucial role of the rural health auxiliary in this entire program.

Vaccine-Preventable Diseases

The immunization program has been a remarkable success in term of its impact on morbidity. As indicated in Table 4.1.5-B, immunization campaigns have remained primarily vertical with limited coverage because of requirements to refrigerate vaccines, particularly for measles.

TABLE 4.1.5-B

VACCINE DISTRIBUTION AND PERCENTAGE COVERAGE
(Numbers and Per Cent of at-Risk-Population)
1976

| Cycle | D P T | MEASLES | POLIO | B C G |
|---|---|---|---|---|
| 1 | 278,089<br>(69.5%) | 191,567<br>(58.4%) | 271,370<br>(67.9%) | |
| 2 | 123,170<br>(57.4%) | | 121,649<br>(56.7%) | 103,756<br>(48.4%) |

Source: Division of Epidemiology, Dirección General de Salud Pública.

The resurgence of measles cases in 1976 was caused by two major factors:

1. fewer actual doses of the vaccine were given, and
2. due to migration following the earthquake many young children in marginal areas were not vaccinated.

However, this outbreak also re-emphasizes the importance of delivering potent vaccine to all villages of the country. Given the limitations on field staff and refrigeration facilities in health centers, massive campaigns seem to remain the most pragmatic

delivery system for measles and polio vaccines. Diphtheria and tetanus immunization programs for children will have relatively little effect on disease in adults for a generation and booster vaccinations will be required at three and ten years. Further, tetanus immunization of children will not alter neonatal tetanus rates in the first generation; incorporation of tetanus vaccination into a prenatal care program will be required.

Special immunization problems were encountered in the analysis of the health status of finca workers, 1/ whose isolation makes them most susceptible to being missed during national campaigns. Morbidity data for these workers confirm a higher-than-national rate of vaccine-preventable diseases. Thus, future mass campaigns should pay special attention to reaching these populations.

Finally, an evaluation should be made of rabies as a vaccine-preventable disease. 2/ A control program should focus on the vaccination of the large canine population, estimated at 650,000 dogs nationally, or one dog per each ten persons, which roams the streets and market places without control. This uncontrolled canine population, added to the lack of a permanent, frequent and well-organized anti-rabies vaccination program, makes rabies endemic in all populated areas of the country, with seasonal outbreaks and epizootic outbreaks every two years.

The most advisable method for the control of rabies is the reduction of the susceptible canine population, through an immunization program which will (a) immunize a minimum of 80% of the susceptible canine population within a year, and (b) be continued on a scheduled basis in order to control the virus in the canine population. Isolated cases should be treated as epidemiological, eliminating the source and the contacts.

---

1/ See Part 4.1.7 of Chapter 4 and Annex 5.7: Extension of Health Services to Finca Workers.

2/ The study of rabies in this Assessment was conducted as part of the Environmental Sanitation study since sanitary inspectors are responsible for carrying out part of this program. For further details on rabies, see Part 6 of Chapter 4.6 and Annex 5.14: Environmental Sanitation.

Microbacterial Infections

During the development of the Assessment, the MOH expressed concern about two diseases in this category, tuberculosis and leprosy. At present leprosy does not appear to be a major public health problem and the MOH leprosy service seems more than sufficient to deal with the small number of cases reported. However, more active surveillance in the Departments of Guatemala and Santa Rosa would make possible more accurate diagnosis of the extent of the disease.

The Tuberculosis Division of the MOH will cease to exist as a vertical health program in 1978. Both curative and preventive programs will be transferred to the department level; the national program will retain a planning and evaluation function. The stated objectives of this integrated program reflect several important new operational strategies:

1. The program will be based on the detection of open cases and their contacts.

2. The importance of well-supervised ambulatory therapy will be stressed in order to diminish the high rate of hospitalization.

3. BCG will be systematically applied to children entering school, and perhaps, to all newborn, and

4. Tuberculosis services will be provided to all departments equally.

The contemplated change from an essentially vertical program to a horizontal one will be troubled by a lack of basic knowledge on two levels. No systematic data exist on patient health-perceptions related to tuberculosis, and only rough estimates exist on the number of unreported cases of TB and their geographical clusterings. Three main sources of resistance to reporting may be anticipated:

1. Social and geographical inaccessibility of fixed health facilities,

2. Fear of hospitalization, and

3. Lack of recognition of tuberculosis and its symptoms as a disease per se.

Several important issues need to be addressed. The training of medical and laboratory personnel at the health center level

could require several years. In addition, a great many health centers do not have microscopes or other basic equipment. Sufficient funding has not yet been allocated, nor perhaps priority established, for systematic drug-sensitivity testing in cases of resistance to the INN streptomycin. Most importantly, the program as outlined, will detect TB only among persons who present themselves at health centers. Provisions have not been made in the community to detect open (infectious) pulmonary tuberculosis cases which do not present themselves at the health facility. An outreach component has not been specified which will control drug therapy or the search for contacts. Finally, decentralization of responsibility, to date, does not include additional staff at the local level to implement the proposed program.

A thorough program evaluation is suggested after two or three years of operation in the decentralization mode.

Parasitic Infection

In Guatemala three major types of parasitic infections are prevalent: intestinal helminths, malaria, and onchocerciasis. Prevalence of helminths is quite high, especially ascaris, hookworm, and tricocephalus.

The majority of studies conclude that most persons, including children, suffer little disease until the density of adult worms reaches critical levels in the intestines. Heavy infections with ascaris and tricocephalus are commonly believed to cause or exacerbate malnutrition or malabsorption in children; the exact magnitude of the relationship has not been quantified. 1/ Hookworm infection can produce iron deficiency anemia when the diet has less than optimal iron content.

The definitive control mechanism for all three types of helminths is the use of properly installed privies. Until fecal contamination is effectively eliminated, drug therapy is available to decrease parasite-caused morbidity. Some countries, such as El Salvador, have carried out mass therapy for all children with Mebendazole, a single-dose therapy effective against all three helminths. An alternative and potentially more cost-beneficial use of Mebendazole (in that therapy is only a temporary method to control morbidity) is to routinely treat only children with anemia, malnutrition or symptoms referrable to parasitism.

---

1/ Recent studies by the Institute of Nutrition of Central America and Panama reveal a daily caloric loss of 150-300 calories among adult males due to malabsorption.

While Guatemala has the largest endemic area of onchocerciasis in the Americas, 1/ the disease is concentrated in the most productive agricultural areas. Exact figures for the prevalence of onchocerciasis in Guatemala are not currently available because most infected individuals belong to an indigenous population which is not accurately enumerated. However, its prevalence appears to remain quite stable.

The social and economic impact of the disease in Guatemala is poorly understood. In 1976 the onchocerciasis service was merged with the malaria division. The program now centers around a long-term externally-funded Japanese control project which is redefining the prevalence of human infection and disease, performing basic studies on vector ecology and conducting trials with newer larvacides. These activities are directed at a pilot control program which might generate a model for transmission control in other areas of Guatemala. The continuation of this research is encouraged because of the impact of the disease in the most productive area of Guatemala.

The goal of the malaria program remains the eradication of malaria from 85% of the country within five years. While this goal may be feasible, the ability to achieve it may be affected by several powerful factors:

1. Malaria in El Salvador and Honduras is increasing; the situation in El Salvador is approaching a critical point. Movement of population from the south continues to pose the threat of reintroduction of malaria along Guatemala's southern border.

2. Anopheles albimanus, the vector of malaria in Guatemala, is highly resistant to many insecticides.

In recent months in Guatemala public attention has been drawn to the increase in the prevalence of malaria and to the resistance to DDT developed by the insect vector.

In the first half of 1977, 6,000 cases of malaria were reported. This represents a significant but not alarming increase over the 4,500 cases reported in 1974. However, the 1977 reported cases remain dramatically less than those in 1956 when 300,000 cases were reported annually and the National Malaria Eradication Service in Guatemala began.

---

1/ The endemic area is the south coast, the most productive agricultural area in the country.

Of the 6,000 malaria cases reported during the first half of 1977, more than half were detected in the Department of Escuintla, where an increased prevalence of 12-14% has taken place. This is attributable to the widespread use of DDT and Propoxur to combat insect predators of the cotton crop. As a consequence, the malaria vector, Anopheles albimanus has developed a resistance to these insecticides.

Between 1972 and 1974 rural malaria rates in El Salvador almost doubled and malaria rates also sharply increased in Honduras, another of Guatemala's neighbors. Movement of the vector from El Salvador, together with the presence of an estimated 10,000 Salvadorean citizens working without permits in Guatemala, serve to maintain high prevalence rates.

The Guatemalan National Malaria Eradication Service is now in the process of procuring an alternate insecticide, Fenitrotion, to which the vector has not yet developed resistance, and will implement other methodologies formerly proved effective in combating the disease.

As malaria incidence decreases, pressure will increase to diminish the program's operating budget, a fiscal phenomenon experienced in many other countries. Decreased funding limits the surveillance imperative to maintain malaria at low levels. Malaria eradication nationally is not feasible while transmission remains unchecked in adjacent countries.

Insecticide Poisoning 1/

While not a communicable disease in the strict sense, insecticide use has implications for insect borne communicable disease and therefore a description of the problem appears in this chapter.

The profuse and unrestricted use of pesticides in the production of cotton has been responsible during the period 1972-1975 for 5,684 cases of clinical intoxication and 5 deaths in Guatemala.

---

1/ Abstracted from: "An Environmental and Economic Study of the Consequences of Pesticide use in Central America Cotton Production". ICAITI, January 1977, Guatemala.

The population at risk in the cotton growing area of Guatemala is 364,000, so annual morbidity rates per thousand for this population is 3.9.

While these numbers do not identify pesticides as a major cause of morbidity and mortality, nevertheless pesticides must be considered a major environmental hazard and a potentially serious threat to humans and animals.

The most commonly used pesticides (DDT, BHC, Toxophene, more recently organophosphates) have been used excessively and inefficiently. For example during 1974-1975 Guatemala was the heaviest user in Central America of DDT with an average loading of 10.11 Kg. per hectare, approximately five times the level used for the same purpose in Honduras. Distribution is also inefficient. It has been determined that, sprayed from aircraft, approximately 56% of the insecticide aerosol falls outside the cotton field being treated.

In 1973 a study was made of the geographic distribution of pesticide intoxication. The Department of Escuintla was found to have 765 of the 1,221 (63%) of the cases reported in the cotton growing area. Interestingly, two municipalities (Tiquisate and La Gomera) within this Department were those in which virtually all these cases occurred.

The treatment cost of pesticide intoxication has been estimated to be about $32 per case, so that the cost to the health system of Guatemala during 1972-1974 was approximately $182,000.

Intoxication, the majority of cases of which are caused by organophosphorous compounds, is found not only in cotton workers as a consequence of contact with sprayed plants and failure to take adequate precautions in handling pesticides, but also in families including children whose homes are adjacent to cotton fields and who are subject to spray fall out and drift. There is a statistically significant relationship between numbers of people affected and area of cotton planted.

The presence of DDT residues in human tissues is much higher in Central America than in countries like the U.S., approximately eleven times the concentration in the blood serum of Guatemalans dwelling in the cotton growing areas and approximately 1.6 times the figure for Central American urban areas. By world standards, Central American cotton workers are among the populations most highly exposed to pesticides. The levels determined for Guatemalans were higher than all other Central American countries except El Salvador.

While there is no clear evidence that relates accumulating sub-clinical levels of DDT with long-term physical effects the potential exists and should be recognized. Accumulating levels come about in urban and other dwellers in non-cotton producing areas by ingestion of foods including milk produced by Guatemalan herds. Average contamination of milk showed levels of DDT approximately ninety times above levels permitted in the U.S. Levels in other foods, including seafood and beef are at unacceptably high levels.

This contamination represents a serious annual economic loss of export currency to the beef industry. Recent figures place this as high as $1.7 to 2.0 million.

As indicated in the preceding section, perhaps the most serious effect of pesticide usage on human health comes about as a consequence of the increasing resistance of the malaria vector (Anopheles albimanus) to insecticides. Malaria rates in Guatemala have shown significant increases in the last 4 years and the use of alternate insecticides to DDT has increased cost of malaria control by approximately $1.6 million annually.

## Conclusions

Communicable diseases of the types discussed in this chapter account for the majority of morbidity and mortality in Guatemala, especially for children between the ages of 0 and 5 years. Programs that will have major impact can be adopted or modified for those diseases with known control measures. Other diseases, especially intestinal helminths and rabies, will require a complex integrated program including environmental sanitation, nutrition and prophylaxis. The recommendations which follow are largely specific to the communicable disease control system, but those made in other sections of the HSA are also relevant to disease control.

Recommendations

Based on the problem analysis and subsequent discussion, the following recommendations are made with respect to communicable disease control:

Recommendation 1: COMMUNITY HEALTH WORKERS SHOULD BE TRAINED TO ENHANCE BOTH THE EXTENDED ACCURACY AND FEEDBACK OF MORBIDITY REPORTING AND EPIDEMIOLOGICAL SURVEILLANCE.

Recommendation 2: A SYSTEMATIC REFERRAL NETWORK SHOULD BE DEVELOPED FOR THE REFERRAL OF LABORATORY SPECIMENS FROM THE LOCAL LEVEL TO THE REGIONAL LABORATORY.

Recommendation 3: A STUDY SHOULD BE CONDUCTED ON THE ADMINISTRATION OF, EFFECTS OF, AND APPROPRIATE METHODS FOR USING MEBENDAZOLE FOR THE CONTROL OF INTESTINAL HELMINTHS IN CHILDREN UNDER FIVE YEARS OF AGE.

Recommendation 4: CONTINUING RESEARCH SHOULD BE ENCOURAGED ON (A) THE FACTORS WHICH LIMIT TRANSMISSION OF ONCHOCERCIASIS AND (B) THOSE OPERATIONAL STRATEGIES MOST LIKELY TO INTERRUPT TRANSMISSION.

Recommendation 5: MALARIA VIGILANCE SHOULD CONTINUE WITH ACTIVITY DIRECTED TOWARDS MOVING AFFECTED AREAS INTO THE CONSOLIDATION PHASE.

Recommendation 6: IMMUNIZATION PROGRAMS SHOULD CONTINUE AND BE EXTENDED WITH PARTICULAR EMPHASIS ON DISPERSION OF VACCINE THROUGHOUT THE YEAR TO THE HEALTH CENTERS AND HEALTH POSTS, AND EXTENDING COVERAGE TO THE POPULATION MOST AT RISK, THAT IS, CHILDREN AND PREGNANT WOMEN. SPECIAL ATTENTION SHOULD BE GIVEN TO WORKERS IN FINCAS WHO ARE CURRENTLY NOT INCLUDED.

Recommendation 7: THE PROPOSED 1977 ALTERATIONS IN THE TUBERCULOSIS TREATMENT AND DETECTION STRATEGY OF THE TB DIVISION OF THE MINISTRY OF HEALTH SHOULD BE CAREFULLY PLANNED AND EVALUATED.

### 4.1.6 Community Participation

#### Problem Analysis

One of the keys to the development of a low-cost rural health delivery system, and the achievement of significant improvements in the health status of rural inhabitants through preventive medical practices, is the education and active involvement of the population in the health delivery system.

Guatemala possesses a rich variety of public and private experience with various techniques for achieving this interaction. At the same time, serious problems are also inherent in Guatemala's cultural diversity which impede the easy generalization of this experience to the whole country. Communities have a unique mix of institutions, resources, customs, histories, and personalities. The variables are further complicated by the significant differences between urban and rural areas and the dramatic differences between Indian and Ladino lifestyles. It is very difficult to generalize about the success or failure of a particular project because the variables exist to a different degree in each community and are contributory to success or failure in different ways.

Past attempts to generalize have had to be so superficial in order to include all situations that the generalizations are not useful in a specific situation. Conversely, analysis of specific communities have proved to be useful only within a limited geographic area. In an effort to present a broad and representative view of community participation variables in Guatemala, the experiences of various groups or programs that are active in community participation were reviewed, including Acción Conjunta, Acción Católica, Ministry of Agriculture programs (such as BANDESA, DIGESA, CENDAP), individual cooperatives, Ixcán Resettlement, Centro Campesinal Agrícola Chcquí, World Neighbors/San Martín Jilotepeque, national cooperatives (such as FENACOAC, FECOAR, Fundación del Centavo, and miscellaneous DIGESA cooperatives), the Maryknoll Health Program of Huehuetenango, Clínicas Behrhorst, the CARE/El Quiché water and latrine program, earthquake reconstruction in general and the USAID disaster-relief building supply program in particular, the CAPS/Universidad Landívar promoter program, Desarrollo de la Comunidad, the TSR program, and Educación Escolar.

Nothing in the Guatemalan experience with community participation suggests that it is a model to be abandoned. On the

contrary, experience with cooperatives, earthquake reconstruction activities,1/ national level community development activities, and private volunteer programs,2/ indicate that such activities can provide the base for future projects not only in infrastructure but in less visible areas such as health and education. Furthermore, such projects can be not only economically feasible but can offer good rates of return on development dollars spent, although this is certainly not the only criterion of success nor perhaps even the correct one. Moreover, in the area of health, women not only can be used as primary care personnel but may come to be preferred. Finally, the earthquake reconstruction period has made it clear that there is already more local-level capacity than previously thought to manage and deliver completed projects and to do so competently with a sense of self-confidence.

However, the amount of objective, systematic, longitudinal, qualitative and quantitative evaluation of the community development experience in Guatemala is minimal. Such evaluation data as exist should be used in future program design and the MOH should generate and avail itself of additional dat- by emphasizing the community participation and receptivity aspects within the rural health evaluation project and its other programs as well as reviewing the community involvement and receptivity levels in the Programa de Educación Extra-escolar.

Those programs which emphasize early community involvement in a real sense rather than an ideology-oriented one; that use competent technicians, preferably from the area, who reside in the area and who are competent in the local idiom; that use culturally respectful teaching methods and technologies; that eschew politicization and avoid factional identification; and that coordinate with other existing outreach entities, are feasible.

Some Basic Findings Important to Community Participation

The municipality continues to be the primary social, political and cultural unit in Guatemala. However, a variety of legal, fiscal, and sociocultural realities at the municipal level conspire

---

1/ As of March 1977, the USAID disaster-relief building supply distribution program had generated 228 community projects involving $428,476 and 3,875 workers, with 173 communities in the decision-making stage. These projects employed a range of from 3 to 200 workers and expenditures of $250 to $47,725 in aldeas, caseríos, and municipios. The majority were for roads, with water and educational projects following, in frequency, rather well behind.

2/ Such as Clínicas Behrhorst, the Maryknoll Health projects, the CARE water projects, and the Caritas Food-for-Work program.

to limit the role of local government as a mechanism in community development. These are:

1. A general lack of municipal funds due to (a) an uneven distribution of monies by the central government among the various municipalities, (b) limits on the types, rates, and utilization 1/ of tax revenues generated by and for the municipalities, (c) the unwillingness of much of the citizenry to pay local taxes and often of the municipality to aggressively collect them, (d) a poor tax base in many areas, and (e) budgetary disproportions.2/

2. Public apathy, expressed both in unwillingness and an indisposition, to form the local citizen-councilman committees required by law at the same time that public demand for government services mounts.

3. Centralization and lack of municipal autonomy, combined with an unwieldy, uncoordinated, unresponsive central bureaucracy and the inability of most municipalities to fulfill their fiscal, technical, and leadership responsibilities due to inadequate numbers of qualified personnel whose limited terms of office do not in many cases provide suitable motivation.

4. Lack of articulation between the various local levels of government and the central bureaucracy, absence of sufficient accessible pressure points 3/ and of local pressure groups, and lack of knowledge about where pressure should be applied.

---

1/ For example, funds distributed to the municipalities by the central government from taxes on gas, coffee, beer, and liquor are restricted largely to community public works projects but cannot be used, for instance, to pay a doctor.

2/ In 1971, the average municipality spent 42% of its budget on salaries and employee benefits, 23% on loan repayment, and 22% on maintenance and purchase of equipment, leaving 13% for public works, a national average of $0.62 per capita per municipio.

3/ The picture of personal string-pulling, or palanca, as the dominating mechanism does not seem to apply in the Guatemalan national/local government relationship. The chief pressure point for alcaldes is INFOM (Instituto de Fomento Municipal), followed by approaches to the President and to the appropriate ministry. Channels of influence do not appear to include businessmen, local landowners, church leaders, or party officials in any major way.

5. A resulting distrust between local and national government, each seeing the other as inefficient, inept, and corrupt. The best image of the effectiveness of central government is held by the most populous Indian municipios, particularly in the Department of El Quiché. The poorest image is held by Ladino municipalities with small populations, especially in the eastern part of the country. A "good" image of central government includes concepts of political efficacy, easy accessibility, moderate levels of expectations and of development as going beyond infrastructure to technical assistance, employment sources, and need for group formation.

6. Little or no priority-setting by municipal authorities, nor the competence to determine priorities or carry them out, a condition exacerbated by the desire of limited-term mayors to quickly build monuments or reputations as steps up to bigger things or, on the part of the more dedicated, to settle for the most feasible in lieu of the most needed.

There are some factors which, with some consistency, seem to hinder or help community participation. Those factors which have contributed to the success or failure of past programs involving community participation constitute useful criteria for future programs. Obviously those factors which have been associated with problems, resistance, or failure should be avoided in future programs. Those which have heightened community participation should be replicated, but with adequate monitoring to be sure that they continue to be valid.

The factors conducive to success or failure are listed below. However, each factor does not exist in every community and the relative importance of the factors is variable from community to community.

Factors Conducive to Problems or Failure 1/

1. Outreach personnel who are inadequately trained, not only in community development techniques but, most importantly, in their own field of expertise.

2. Lack of adequate funds to properly educate or aid the target population.

3. Politicization.

4. Poor or inadequate instruction from outreach personnel, particularly in management skills and rights and duties of members.

---

1/ All the factors listed appeared in various combinations in relation to a number of projects and project types; they are not one-time aberrations.

5. Highly limited service areas, so that programs initiated outside the base of operations tend to lack continuity, a problem exacerbated by rapid personnel turnovers.

6. Opposition, based on fear of competition, from other villagers who are not members of the group in question, particularly if the program is economically oriented.

7. Improper handling of joint funds.

8. Emphasis on departmental capital cities.

9. Truncation of programs before fruition.

10. Orientation, in many instances, toward Ladinos or ladinoized-Indians, particularly in loan programs or at leadership levels.

11. Projects poorly planned, inadequately supervised, and not carried to completion.

12. Erratic or one-time recruitment patterns, conducive to ignoring of out-migrants or residents of remote areas who are infrequently in town.

13. Ignoring of random local officials, often deceptively crucial as "gatekeepers" or channels of communication.

14. Little attempt to contact the more conservative or poorer members of the community, rather than emphasis on the most progressive elements and, sometimes, accompanying politicization.

15. Local factionalism.

16. In capitalization programs, uneconomically limited scope and continuity.

17. Indian/Ladino disjuncture.

18. Financing problems, usually the result of the inability of essentially poor people to maintain a solvent budget.

19. Random avoidable disasters (such as a crop advisor who leaves at a crucial point in agricultural cycle) which are, in effect, "over-remembered".

20. Lack of fulfillment of commitments by promoters (i.e., not showing up for meetings), especially in the indigenous population which has self-image of honoring commitments.

21. A sense, on part of Indians, that Ladino professionals and technicians disdain them, are ignorant of their culture, give advice that is too abstract and theoretical, or give it in a patronizing manner.

22. Similar types of programs and projects 1/ operating in the same geographical areas in an independent, parallel fashion, guided by different philosophies and goals, without overall planning and, usually, with little or no integration even at the level of the individual outreach worker.

23. Lack of managerial skill and aggressiveness in organization.

24. In capitalization projects, poor systems for monitoring funds and delinquencies, which enhances the probability of error or corruption, and thus generates an image of corruption.

25. Inadequate stress on selection and training of indigenous organizational staffs.

26. Capitalization projects which are so oriented to the center that local participants feel conflicts of loyalty in promoters and lack of intimate relationship with the entity in question. Memberships stagnate or dwindle, an atmosphere of hostility envolves, and, in the case of capitalization projects, loan repayment is poor.

26. An essentially paternalistic mode of delivering assistance, not so much in the assistance as in decision-making and management, so that outside ideas are imposed, however benignly, and local officials are involved only as tokens, which weakens whatever administrative muscle might have developed.

27. The difficulty in evaluating the success of community participation programs, and perhaps undue haste in tagging them as failures, makes temperance and delicacy in project adjustment difficult.

---

1/ Such as cooperatives and random community development efforts. The same observation is made elsewhere in the Health Sector Assessment with regard to rural health delivery programs.

28. Poor communication among communities so that project replication, dissemination of new techniques, and healthy competition among communities is slowed. This is exacerbated by poor levels of communication among community development workers in all sectors.

29. Insufficient involvement of women in community groups and as either paid or volunteer promoters, or of more traditional groups of which women may be a part.

30. Lack of local-level "micro-planning" 1/ and insufficient preliminary research.

31. A tendency, apparently widespread, to define community development or community participation as "acceptance" of a program with real involvement only in its implementation. This limits the degree and quality of community participation and may also predetermine levels of success in the long term.

32. Too narrow a focus for the community entity which is formed, for example, fertilizer distribution.2/

---

1/ This term is currently being emphasized by Desarrollo de la Comunidad in its 1976-1979 Plan Operativo. As a correction to Desarrollo's previous emphasis of infrastructure and scant involvement of the community in research, project identification, and project planning, this entity now will stress the concept of infrastructure as an educational tool and involve the community earlier and more intimately in the total process.

2/ The Rusch team saw narrow focus as a flaw in the Guatemalan cooperative movement. Not all would agree. A recent study by Tendler (see PASITAM reference) of Cooperatives in Ecuador and Honduras suggests that Cooperatives are more likely to succeed in the long run when they are direct (organized around a concrete goal which can be achieved in a limited time); necessary (when they are focused on one task which could not be done unless individuals cooperated but which minimize needs for non-campesino skills and considerable outside talent); exclusive (when groups are small and insulated from other groups, permitting peer pressure, rivalry between groups to achieve, and resemble familiar arrangements); and simple. Organization is thus instrumental, not an end in itself, but may lay the foundation for expansion into other, more complex activities. Nothing suggests that this does not apply in the Guatemala case as well, the criticism of cooperatives as too narrow in focus would only be accurate if they did not expand in the future.

33. Promoters who are not natives of the area in which they work, may be a limitation. However, community development activities generated by promoters who are not resident in their work area is a fatal limitation.

34. Educational activities which do not use local dialect have noticeably lower levels of impact.

Factors Conducive to Success or Perceived Benefits 1/

1. Apoliticalness.

2. Arrangements which permit the accumulation of personal capital or which collectivize economic activities for community welfare needs.

3. An open decision-making process.

4. Seeing any monies or supplies involved "stay in town".

5. Honesty in those promoting or managing the projects.

6. Meeting schedules timed with market days (after market hours).

7. Dedicated, highly-motivated leadership in the first years of a project, together with close involvement and continuous interaction from the beginning with the client population.

8. Use of indigenous promoters.

9. Obvious knowledge and competence on the part of any technician in his own field of specialization. Ethnicity or national origin do not seem to matter in any widespread or consistent way; whether a technician or promoter is Ladino, Indian, or foreigner appears less crucial than attitudes of respect and a pedagogical posture of sharing rather than administering superior knowledge. The problem for outsiders is generally that of entrée.

10. A communication model based on or accounting for the demonstration effect, communication from neighbor to neighbor in casual conversation, use of local dialect, small-group

---

1/ These factors are not in any order of importance or prevalence. They vary from those of basic philosophical stance to very minor facets of interventions.

rather than more massive meetings, use of culturally respectful and compatible communication techniques,1/ and the "satisfied-user" approach.

11. Specific construction projects (e.g., introduction of potable water) elicit the highest levels of community participation. Within this, participation is greater in program implementation than in decision-making, research (data collection) and communication activities.

12. The use of existing institutional arrangements 2/ as basis for community development activities.

13. Outreach to people in more remote rural areas, as well as in more accessible and central locations.

14. Attention to organization and cooperative education of members at the basic village level.

15. Efficient administration within national or regional parent agency.

16. No extension of due dates on loans in capitalization projects, which seems to elicit higher repayment rates than more flexible repayment policies. Peer pressure at the local level is also more effective in this regard than national-level regulations.

17. Enthusiastic and persistent promotion of the project.

18. Group supervision of promoters is more effective than supervision by a single individual, who can be bluffed more easily. This approach contains useful elements of peer pressure and validation of concrete evidence or impressions.

19. Success in a prior project or the achievement of something valued and tangible is the best foundation for continuing community participation, especially when elements of consciousness-raising are gradually introduced and the sheer flow of communication in all directions is increased.

---

1/ A brilliant example was the use of photographs of the terracing at the Mayan archaeological site of Zaculeu to persuade highland agriculturalists to return to the fruitful methods of their very impressive ancestors.

2/ Either more modern entities such as Cooperatives, reconstruction committees, or municipal committees, or local-level civil and/or religious hierarchies.

20. Visits by central government officials to discuss local development problems,1/ with corresponding prompt responses to ensuing solicitations from communities for central government assistance.

Recommendations

Based on the Problem Analysis and subsequent discussion, the following recommendations are made with respect to community participation.

Recommendation 1: THE GOVERNMENT OF GUATEMALA SHOULD SURVEY ONGOING HEALTH DELIVERY SYSTEMS IN GUATEMALA AND INCORPORATE THEIR KEY FEATURES INTO ITS PROGRAMS.

Recommendation 2: THE GOVERNMENT OF GUATEMALA SHOULD REVIEW ITS EXISTING PROGRAMS IN ENVIRONMENTAL SANITATION TO ENSURE THAT, TO THE EXTENT POSSIBLE, THEY MINIMIZE THE FACTORS FOUND TO IMPEDE COMMUNITY PARTICIPATION AND MAXIMIZE THE FACTORS FOUND TO HAVE POSITIVE EFFECTS ON COMMUNITY PARTICIPATION.

Recommendation 3: MANAGERS OF RURAL HEALTH OUTREACH PROGRAMS SHOULD FAMILIARIZE THEMSELVES WITH AND USE THE SUCCESSFULLY DEMONSTRATED TECHNIQUES FROM OTHER SECTORS AND PROGRAMS FOR INVOLVING COMMUNITIES E.G. AGRICULTURE, COOPERATIVES, COMMUNITY DEVELOPMENT, NON-FORMAL EDUCATION.

---

1/ Anecdotal data support the widespread view among the 100 mayors interviewed by McIntosh that ignorance on the part of ministries and agencies leads to overblown, incorrect, or non-solutions to local problems.

### 4.1.7 Extension of Health Services to Finca Workers 1/

#### Problem Analysis

While approximately 500,000 families work farms less than 110 acres, the majority of the exported agricultural products of Guatemala are grown and harvested on farms of 110 acres or more, called fincas, which use and employ farm workers who permanently reside on the finca, workers who live in communities close to the finca, and a large number of seasonal migrant workers from the highlands.

Fincas of 110 acres are either government-owned national farms or farms privately-run by individuals or enterprises. The government of Guatemala owns 24 fincas which employ only 4,000 workers. Privately-run fincas number 9,000 and employ 80% of the migrant and resident finca workers in Guatemala.

#### Number of Farm Employees and Dependents

Data describing the worker population of fincas are not routinely collected and reported. The principal data source for this report is the Ministry of Labor which receives an annual report from each finca owner in which the employees are listed as either part-time or full time laborers. Totals derived from these reports include some multiple counting of workers because some migrants move from one employer to another. The extent of the double counting is unknown but it is believed to be minimal because of data on migration patterns. Some under-reporting also occurs due to failure to report workers, particularly part-time workers, including migrants, as well as part-time workers who are members of families of full time workers. The estimated net effect is approximately a 15% under-reporting of the total finca workers.

Data gathered from the Ministry of Labor reports indicate that the total work force of finca laborers in 1964 was 246,350, increasing to 413,560 in 1974, an average annual increase of .04 percent; of these, 80% were part-time workers, virtually all of which were migrants. Assuming this rate of increase until 1977, a new estimate of 463,000 finca workers is yielded. This figure is used as the low estimate of the size of the finca worker population. If it is adjusted upward for the estimated 15% of under-

---

1/ See Annex 5.7: Extension of Health Services to Finca Workers, for a more detailed analysis of the problem and the proposed programs.

reporting, the worker population would be 532,000; this is used as the upper end of the range for the number of finca workers, the mid-range is approximately 500,000.

Using the figure of 500,000 laborers, who work part-time or full time at some time during the year, and assuming an average family size of 4, 1/ the estimated total population-at-risk on the fincas is two million persons.

Approximately 1,600,000, or 80% of this population are part-time workers. Field observation indicates that approximately 10% of part-time workers are not migrants. Deducting the non-migrant part-time worker from the pool leaves a remainder of 1,440,000 part-time migrant workers at-risk on the fincas in 1977.

Other estimates of the finca worker population have been made and are useful for comparative purposes. Fletcher et al 2/ estimated, in 1969, a finca worker population of 100,000 full time employees and over 400,000 migrants. However, this estimate is closer to the 1977 finca worker population than it was to the 1969 population.

Data from the Social Security Institute (IGSS) are also useful in arriving at estimates of the agricultural employee population. In 1974, 271,000 affiliate workers covered by IGSS were classified as rural, of whom 90 percent (243,000) were considered finca employees. It is estimated that 50% of eligible workers do not appear in IGSS data for such reasons as poor record keeping and the workers remain on the finca less than 30 days. Assuming this is true, the total worker population would be 483,000, which is close to the estimate based on Ministry of Labor data, cited above.

In a special study of migrants in 1967, Schmidt 3/ estimated the total number of migrant workers to be between 200,000 and 250,000. These figures are consistent with the number of laborers reported that same year by the Ministry of Labor.

---

1/ This assumes that the average resident worker family has five members and the average migrant family has only three members. Migrants do not travel with their whole family, but generally only include the adult male and female plus the youngest child.

2/ Fletcher, Lehman B., et al., Agricultural Development and Policy in Guatemala. Iowa State University, Ames, Iowa, 1969, Page 56.

3/ Schmidt, Lester J., The Role of Migratory Labor in the Economic Development of Guatemala, Ph.D. Thesis, University of Wisconsin, 1967.

Finally, a recent study 1/ completed for USAID/Guatemala indicates that:

136,000 families in the highlands were landless agricultural workers.

349,000 families worked family farms of less than ten manzanas 2/

These two groups total 485,000 families which are landless or deriving subsistence from ten or less manzanas. It is believed that these families provide the principal source of migrant labor because they are unable to support all their needs from the production of their land and must find additional work. Assuming that three persons migrated from each of these families, the potential migrant force would total 1,455,000 million persons. This figure corresponds with other estimates of the size of the migrant labor force.

In summary, based upon the above sources, the following conclusions are drawn:

1. The total size of the finca worker population-at-risk is approximately two million persons, of which a minimum of 500,000 are workers and 1,500,000 are dependents.

2. Of the two million persons on fincas, 500,000 live full or part-time on the finca, year round; 1,500,000 are migratory from the highlands and live on the fincas for approximately ninety days per year.

Of this total worker population, 80% work in two regions on the south coast, principally on 350 coffee, cotton and sugar fincas which are predominantly privately-owned and cover approximately 2,233,000 acres.

The health status of the finca workers and their families requires more attention by the Government of Guatemala and international assistance agencies because of the migrant nature of this population, the isolated living conditions on fincas, and because the living conditions and access to health services are among the worst for any rural population group in the country and this particular group constitutes half of the country's rural population.

---

1/ Mann, Fred, Working Paper on Developmental Assistance Strategy in Guatemala, USAID/G, October 7, 1977. Page A-1.

2/ It is estimated that ten manzanas (17.2 acres or less) is insufficient for most highland farmers to grow the food they require to adequately nourish the average family.

The finca populations have the highest rates of malnutrition in the country and very limited access to potable water. Poor sanitation 1/ and diet are accompanied by high rates of diarrheal disease 2/ and amebiasis, the most prevalent finca worker health problem. A relatively high incidence exists of malaria on the south coast and of onchocerciasis (river blindness) in the large rich coffee-growing area along the Pacific watershed. The latter is unique to the finca worker population. Additionally, although vaccinations are a proven cost-effective preventive measure against some illnesses, estimates are that only ten percent of finca worker children have received at least two vaccinations of the four recently provided through the direct vaccination campaigns of the Ministry of Health.

If a successful finca worker health program is to be developed, a number of constraints must be addressed:

First, individual multiple migrations occur because much of the migrant finca worker population remains in one locale less than ninety days and a growing number (22-40%) remain less than thirty days. Second, a certain amount of ambivalence exists toward a finca-based health program among small and medium sized fincas. Third, the large fincas are isolated from Ministry of Health services, geographically dispersed, and lack an infrastructure to deliver health services. Fourth, any system for providing health services must be integrated with the other health services in the area, i.e., MOH and IGSS, as well as with referral specialty treatment centers in Guatemala City.

## Alternative for Organizing a Program

Alternative health programs include programs with a regional or crop-based orientation, public or privately organized programs, environmentally-focused in-lieu-of curative programs, or some mix of these.

### Programs with a Regional or Crop-Based Orientation

All regions, except El Peten, have substantial finca worker populations. However, the south coast regions account for 80% of

---

1/ For elaboration of the environmental conditions on fincas see Appendix 4 in Annex 5.7.

2/ In Annex 5.13: Nutritional Evaluation, INCAP indicates that diarrheal disease rates of 165 per 1,000 in finca areas compares with 80 per 1,000 national average, and the percentage of the finca worker population experiencing Gomez II and III levels of malnutrition is 42% compared to 37% of the population in general.

all finca workers and 90% of all migrants. Thus, a regional focus on the south coastal area would address the needs of the majority of the target population with a minimal number of facilities and administrative infrastructures. A small finca worker health program successfully initiated in this region has the potential of being replicated for a large portion of the total finca worker population. The alternative to this regional focus is the initiation of a much more difficult and costly nationwide program.

Two additional alternatives for consideration are 1) to focus on crop-based programs, i.e., on coffee, sugar or cotton fincas; or 2) to concentrate on only the largest fincas, regardless of crop.

For marketing purposes, growers of the major export crops have formed crop-specific marketing associations. These administrative structures may be candidates to operate a crop-based finca worker health program.

A crop-based health program has, in fact, been successfully initiated among the coffee growers of the Association of Coffee Growers of Eastern Guatemala (ACOGUA), which has developed a unique integration of its program with public and private groups in the region. Similar groups have been very successful in Colombia. The potential of this model for wide replicability and the extent of coverage depends on a significant amount of private initiative. A substantial number of small finca owners are apathetic toward a finca-based health program, thus, it may be wise to initiate health programs within existing crop-marketing groups.

A crop-oriented health program is not in basic conflict with the regional focus, since most fincas in the south coastal region are the prime sources of the three principal exported crops, i.e., coffee, cotton and sugar. In fact, a health program initially based on finca size, crop, or region is most likely to succeed in providing the greatest coverage if it is established in the south coastal region.

Public Versus Privately-Organized Interventions

Private Sector Programs. Limited contact with a small number of finca owners indicates that large finca owners are sympathetic to developing finca worker health programs and are more able than small finca owners to finance such programs. Targeting health programs to the largest finca has the advantage of capturing the greatest number of people in the smallest number of organizational units. Since about one-third of all the agricultural land in the south coastal areas is characterized by large fincas greater than 110 acres, this alternative overlaps with an complements the south coast regional alternative.

Such finca worker health programs have a high potential for success. Three private health programs provide models for consideration.

One private preventive-health services model exists which contracts with a physician to provide preventive health services to seven plantations. The wide replicability of this model is infeasible until an organizational structure is developed which overcomes the problem of recruitment of both practitioners and interested owners. The need for physician-trained personnel to provide simple preventive services may also be questioned financially.

A second private model was provided by a private voluntary health organization (HPVO) which agreed to deliver preventive, ambulatory and hospital care services to fincas for a contracted capitation rate per year. This model included clinic/paramedic services, as well as physician and hospital services, and provided a more stable organizational structure than the model mentioned above. However, the potential coverage of this approach is limited by the HPVO financial base.

A third model is that of the regional crop-based rural clinic program of the Association of Coffee Growers of Eastern Guatemala (ACOGUA) mentioned previously. ACOGUA serves a population of 20,000 located within a twelve-kilometer radius from its clinic and includes twenty fincas and several small pueblos. All persons in the area have access to the medical clinic; proximity to the population is one of the major advantages of this alternative. Although the scope of services is limited to curative services, the potential impact is greater than all other private models because it is totally self-financed and initiated by the finca owners themselves.

Public Sector Program. The development of a successful public model for delivering care to fincas will require a permanent, national organizational structure, publicly organized, with a strong administrative capability. Three alternatives for organizational development have been explored.

One alternative is to expand the decentralized public system of health posts, health centers and hospitals run by the MOH and IGSS, and to subsume current private activities into this system. While the advantages are obvious, the disadvantages are less clear:

1. The MOH health posts that currently serve the fincas are infrequently used, inaccessible, and oriented toward curative services; IGSS health posts are exclusively for accidents.

2. To build new health posts requires that private owners both donate the land to the government and allow access to non-farm residents, and

3. Historically, finca owners have expressed general dissatisfaction with the services of both the MOH and IGSS.

A second organizational/delivery model is that of the National Vaccination Programs. Based on this model, a National Direct Program for Finca Worker Health Care, organized by the MOH may be an effective means of providing health services to migrant workers. This type of program could have the broad regional coverage necessary to respond to the work and migration patterns that exist or may develop, while a program privately initiated on a finca-by-finca basis may find it more difficult to provide comprehensive and continuous care. The National Direct Program could focus in a specific crop area for a specific time; could be more efficiently managed than the more complex bureaucratic public health system; and could provide more flexibility in terms of adapting the program to different circumstances in different areas at different times of the year.

There are disadvantages, however, to the National Direct Program. This approach would create a vertical program at a time when the MOH is pursuing a policy of disbanding vertical programs; this type of program does not lend itself easily to the development of a local infrastructure for the provision of health services; and it does not involve the private sector which is crucial to success on the fincas.

A third organizational strategy is the expansion of the private sector models, noted above, through public sector stimulus and organization of the models that exist. This combination of private and public would essentially use a national organization to coordinate the efforts of the private groups and work to expand their coverage.

Environmentally-Focused Programs in Lieu of Curative Programs

One of the leading causes of morbidity on the fincas is diarrheal illness; additionally, 21% of all deaths are caused by respiratory illnesses, the leading cause of mortality.

Both diarrheal and respiratory illness have specific treatment regimens, but both are more effectively treated through environmental sanitation interventions. A latrine program that includes health education and improvements in the quality of the water supply are preferred community treatments for diarrhea.

Improved housing, including more square-feet-per-person is a more effective way to treat respiratory problems on a community-wide basis than individual symptom-treatment.

While individual patients must be cared for, the community as a whole can be treated also. Three fundamental steps should be taken to improve the current conditions on the fincas: improve water systems, improve both the installation and use of latrines, and improve housing.

A variety of public and private programs could be established. However, whatever eventual method is selected, three program elements are essential:

1. Technical assistance on the design and construction of the needed systems;

2. A loan fund for the medium and small finca owners who do not have the necessary capital but could pay back a loan;

3. Demonstrated capacity and a willingness on the part of the finca owner to provide the needed curative services if assisted with environmental problems.

Estimating the Cost of a Finca Health Program

The upper end of the range of possible total costs of providing comprehensive health services to the total finca worker population of 2,000,000 persons was set by using the HPVO model which was $10.70 per capita 1/ or a total of $9,300,000; the lower end of the estimated range is set by current MOH per-capita expenditures in the south coast which are $2.16, and would total $4,320,000 for a comprehensive finca worker health program.

This estimate does not include improvements in the housing or water systems.

Recommendations

Based on the Problem Analysis and the subsequent discussion, the following recommendations are made with respect to the extension of health services to finca workers.

---

1/ The 1976 experience of a Project Concern Program serving four fincas has been applied to an estimated 500,000 permanent finca residents and 1.5 million migrants receiving an average of three months per year of services that include hospitalization, ambulatory, and nutritional services.

Recommendation 1: THE GOVERNMENT OF GUATEMALA SHOULD MAKE THE EXTENSION OF HEALTH SERVICES TO FINCAS A HIGH PRIORITY AND ENACT LEGISLATION TO INSURE THAT FINCA OWNERS PROVIDE ADEQUATE HEALTH SERVICES TO WORKERS. SUCH SERVICES SHOULD EMPHASIZE PREVENTIVE AND CURATIVE HEALTH SERVICES, HEALTH EDUCATION I' NUTRITION AND SANITATION, AND ACCESS TO LATRINES AND POTABLE ' TER SUPPLIES.

SUCH LEGISLATION SHOULD COVER BOTH RESIDENT AND MIGRANT WORKERS, REGARDLESS OF THE LENGTH OF TIME THEY RESIDE ON THE FINCA, AND SHOULD DESIGNATE A BRANCH OF GOVERNMENT TO ESTABLISH NORMS, MONITOR COMPLIANCE WITH THE NORMS, AND PROVIDE THAT TECHNICAL ASSISTANCE TO FINCA OWNERS WHICH IS REQUIRED FOR COMPLIANCE TO THE NORMS.

THE MEDICAL SERVICES TO BE PROVIDED SHOULD ENCOMPASS THE SPECTRUM OF AMBULATORY CARE AND USE ALL OF THE VARIOUS PUBLIC OR PRIVATE ALTERNATIVES AVAILABLE.

ENVIRONMENTAL SANITATION IMPROVEMENTS SHOULD BE REQUIRED IN HOUSING, WATER, AND LATRINES. TECHNICAL ASSISTANCE SHOULD BE PROVIDED TO INDICATE WHAT IS REQUIRED ON EACH FINCA IN ORDER TO COMPLY WITH THE NORMS.

THE FINANCING OF THE REQUIRED SERVICES WILL DEPEND UPON THE FINANCIAL CAPACITY OF THE FINCA; HOWEVER, A VARIETY OF PUBLIC AND PRIVATE ORGANIZATIONAL AGENCIES MAY WISH TO ASSIST IN SOME SPECIFIC PART OF THE PROGRAM.

Recommendation 2: THE GOVERNMENT OF GUATEMALA SHOULD UNDERTAKE A STUDY OF CURRENT FINCA LEGISLATION TO DETERMINE WHETHER EXISTING LEGISLATION IS SUFFICIENT OR WHETHER ADDITIONAL LEGISLATION IS REQUIRED TO ACCOMPLISH THE OBJECTIVES OUTLINED IN RECOMMENDATION 1.

ONCE A SUFFICIENT LEGAL BASIS EXISTS, EITHER THROUGH REINTERPRETATION OF CURRENT LEGISLATION OR NEW LEGISLATION, A PILOT PROGRAM SHOULD BE DESIGNED FOR THE PURPOSE OF DESIGNING A NATIONAL PROGRAM.

Recommendation 3: THE ORGANIZATION OF THE NATIONAL VACCINATION CAMPAIGN SHOULD BE MODIFIED SO THAT IT 1) IDENTIFIES AND VACCINATES THOSE CHILDREN UNDER FIVE YEARS OF AGE ON FINCAS WHO NEED VACCINATION AND 2) PROVIDES VACCINATIONS TO AT LEAST EIGHTY PERCENT OF ALL WORKERS ON THOSE FINCAS WHICH USE MIGRANT LABOR OR ON WHICH MORE THAN TEN FAMILIES PERMANENTLY RESIDE.

### 4.1.8 Health-Related Private Voluntary Organizations[1]

#### Problem Analysis

As part of the Health Sector Assessment, a study was made of the Health-Related Private Voluntary Organizations (HPVOs) in Guatemala. Forty-two of the major HPVOs were interviewed in depth and partial data was collected for the others.

#### General Description

There are 150 health-related PVOs in Guatemala;[2] 23% are Guatemalan-supported and 77% receive all or most of their funds from other countries. Of this latter group of HPVOs, 21% are non-sectarian and 79%, or the majority of the health-service PVOs, are non-Guatemalan, religiously-oriented groups.

Relatively few of the HPVOs (17%) limit their activities to the development or provision of health services. Most are sectarian or missionary groups involved in an integrated program of agricultural, spiritual and community development, in addition to health services development.

Several minor differences exist between the sectarian and non-sectarian HPVOs. The majority of the non-sectarian groups usually plan to conduct their activities for a specific period of time, generally less than ten years. Although the individual plans of the sectarian HPVOs vary, most plan to continue their programs for an unlimited period of time. In general, the non-sectarian programs appear to employ local residents more, at all levels of operation in the health program, than the sectarian groups. One explanation for this is that the budgets of the non-sectarian groups are usually larger, increasing their capacity to hire local people.

---

1 See Annex 5.8: A Study of Health-Related Private Voluntary Organizations (HPVOs) in Guatemala for a more detailed description of the study, analysis of the problem, and the programs proposed.

2 Ibid., Section 4.5: Index of Health-Related PVOs in Guatemala.

Geographic Distribution

The general geographic distribution of the HPVO sites is indicated on Map 4.1.8-A. It is clear that the majority of HPVO activity is in the Western and Central Highlands (62% of all HPVOs and 53% of all HPVO sites). On the opposite end of the spectrum is the South Coast with 8% of the total HPVO sites. This concentrated activity appears partially justified by the fact that 54.2% of the rural population lives in the highlands (see Map 4.1.8-B). However, this does not explain the low level of HPVO activity in the Eastern Desert and on the South Coast which contain 37.2% of the rural residents but only 15% of the HPVOs and 18% of the HPVO sites. Conversations with HPVO staff indicate another explanation; HPVOs experience relative ease in working with the mountain Indian groups and volunteers find the mountain climate and environment desirable. It is difficult to weigh this in comparison to other factors but it is clear that the distribution of HPVOs in Guatemala is the product of a very complex set of variables that has evolved over the years. It is difficult to determine what exactly has caused this distribution and perhaps its cause is not as important as assisting new HPVOs in finding project locations in underserved areas.

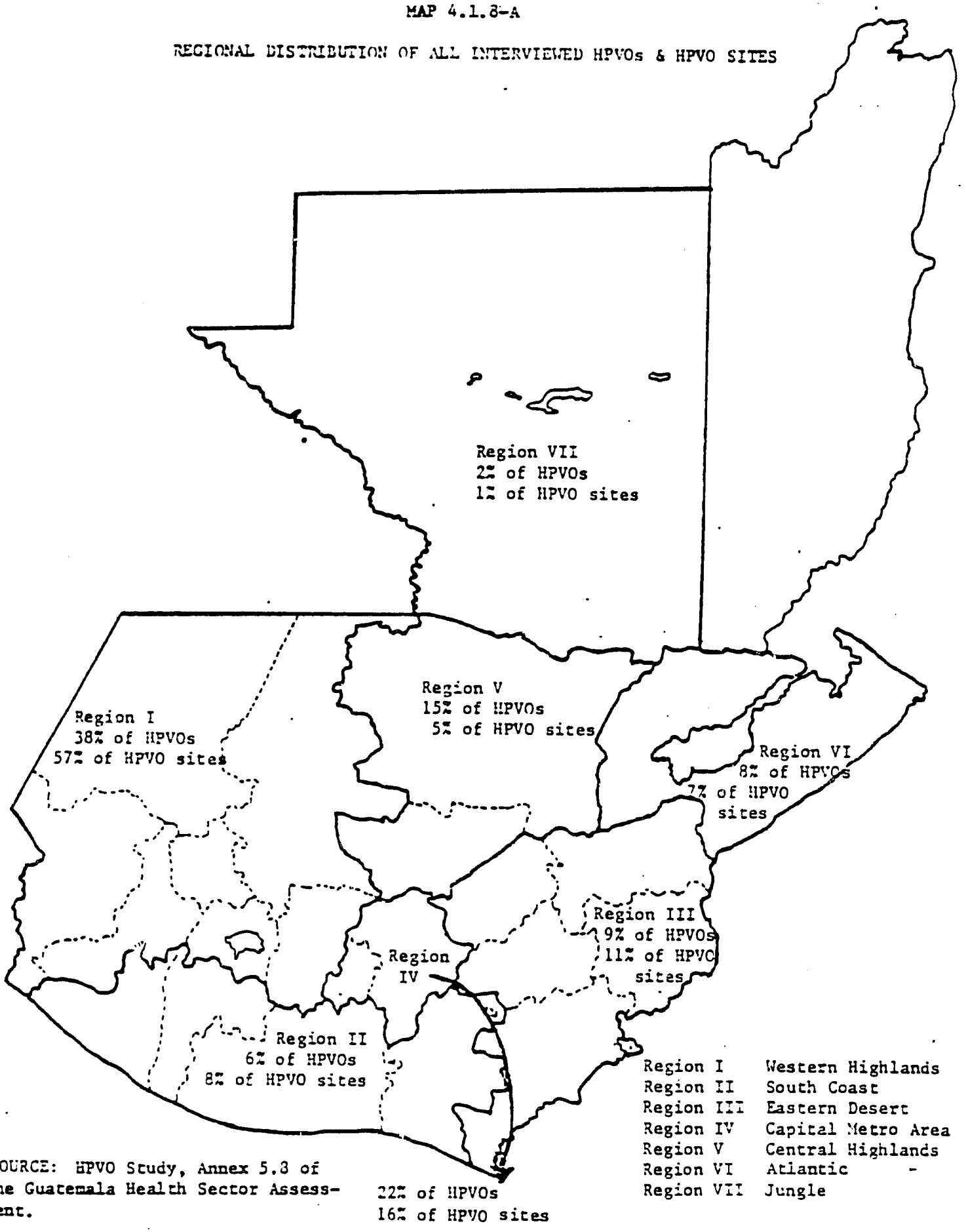
The data clearly demonstrate the concentration of HPVOs in the Western Highlands and the lack of HPVOs in the East or on the South Coast. New HPVOs should give special consideration to locating outside of the highlands.

Utilization

The concentration of HPVO patient visits in the Western Highlands corresponds with the concentration of HPVO sites in the Western Highlands. (See Table 4.1.8-A)

MAP 4.1.8-A

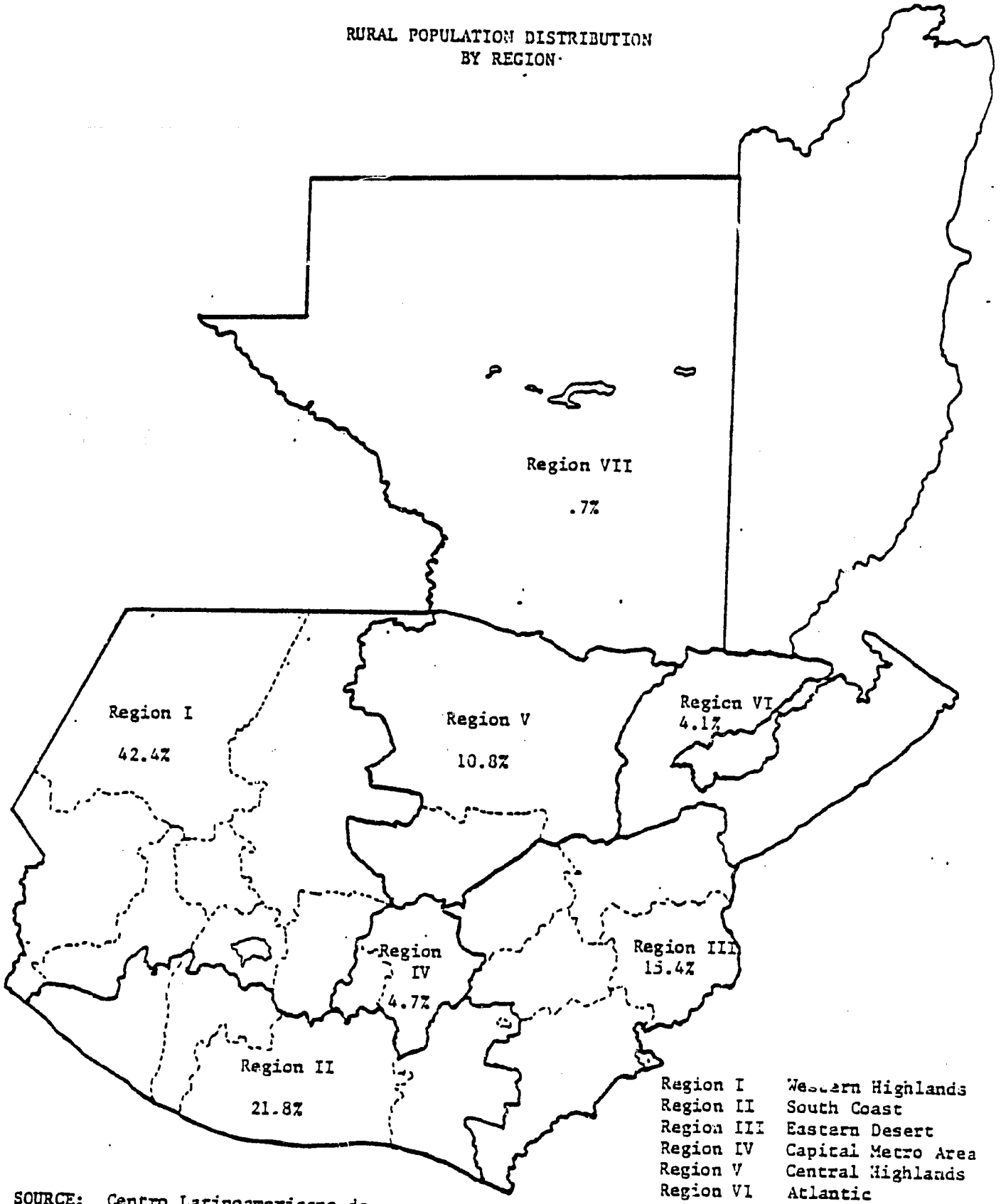
REGIONAL DISTRIBUTION OF ALL INTERVIEWED HPVOs & HPVO SITES




SOURCE: HPVO Study, Annex 5.3 of the Guatemala Health Sector Assessment.

MAP 4.1.8-B

RURAL POPULATION DISTRIBUTION
BY REGION




| | |
|---|---|
| Region I | Western Highlands |
| Region II | South Coast |
| Region III | Eastern Desert |
| Region IV | Capital Metro Area |
| Region V | Central Highlands |
| Region VI | Atlantic |
| Region VII | Jungle |

SOURCE: Centro Latinoamericano de Demografía (CELADE) 1975.

TABLE 4.1.8-A

A COMPARISON OF
THE PERCENTAGE OF TOTAL PATIENT VISITS
IN MOH AND HPVO FACILITIES
WITH THE PERCENTAGE OF HPVO SITES
AND PERCENTAGE OF THE RURAL POPULATION
BY REGION

| | Percentage of Rural Population | Percentage of Total Patient Visits | | Percentage of HPVO Sites |
|---|---|---|---|---|
| | | MOH | HPVOs Interviewed | |
| Western Highlands | 42% | 22% | 64% | 57% |
| South Coast | 22% | 17% | 4% | 8% |
| Eastern Desert | 15% | 23% | 5% | 11% |
| Capital Metro Area | 5% | 23% | 5% | 16% |
| Central Highlands | 11% | 5% | 7% | 5% |
| Atlantic | 4% | 5% | 11% | 2% |
| Jungle | 1% | 5% | 4% | 1% |

SOURCE: HPVO Study, Annex 5.8 of the Guatemala Health Sector Assessment.

There is no satisfactory explanation for the high productivity of the Atlantic Region where 2% of the HPVOs produce 11% of the visits, or the low productivity of the Eastern Desert where 11% of the HPVOs produce 5% of all patient visits.

The distribution of MOH patient visits, as shown above, corresponds more closely to the distribution of the rural population than does the HPVO patient distribution. This is probably related to the wide distribution throughout the country of MOH health centers and health posts.

Productivity

The largest HPVOs working in Guatemala at the time of the study were interviewed. 1/ Collectively, the HPVOs interviewed employ 1,646 persons, including 24 doctors, 50 graduate nurses, 83 vocational nurses, 1,373 health promoters, and use thousands of local community volunteers and a substantial number of volunteer professionals. These employees and volunteers operate 50 clinics, 6 small hospitals, 1,175 supplemental feeding locations, 2/ and 21 training programs.

There is a large difference in productivity between the MOH and HPVO facilities as the following table indicates:

TABLE 4.1.8-B

A COMPARISON OF THE PRODUCTIVITY OF MOH AND HPVO FACILITIES

| | Ambulatory Care Centers as of 1977 (including GOG Health Centers and Health Posts) | In-Patient Facilities | Total Facilities | Total Patient Visits Annually | Patient Visits Per Year Per Facility |
|---|---|---|---|---|---|
| MOH | 629 | 37 | 666 | 831,000 | 1,248 |
| HPVOs | 50 | 6 | 56 | 649,694 | 11,602 |

Distributing all patient visits over the facilities, the 666 MOH facilities experienced 831,000 patient visits, or 1,248 patient visits per year per facility. The 56 HPVO facilities experienced 649,694 patient visits or 11,602 patient visits per year per facility. When utilization data for the urban facilities are subtracted, the productivity of the MOH facilities decreases from 1,248 to 1,146 patients per facility, and that of the HPVOs remains constant.

This difference in productivity between the MOH and HPVO facilities in the rural areas is caused by a variety of factors. One important factor is that the two systems emphasize different

1/ See Annex 5.8: A Study of HPVOs in Guatemala, August 1977, Section 4.4: Alphabetical Listing of HPVOs Interviewed.

2/ These feeding locations include 221 MOH health centers and health posts through which CARE distributes PL-480 food.

types of care. The HPVOs, with sufficient but minimally trained staff, have an active outreach capacity and treat as many people as possible, as quickly as possible; many patients are seen at home by the outreach staff. Most complex problems are referred to MOH facilities. Within the limits of its resources, the MOH treats referred patients but does not conduct a significant outreach program. (However, as the MOH-sponsored Rural Health Technician (TSR) 1/ Training Program continues, and its graduates are deployed, the outreach capacity of the MOH is expected to increase.)

Coordination of HPVO and MOH Services

Since community health needs in Guatemala so dramatically exceed the resources of either the HPVOs or the MOH it is imperative that the two work as closely together as possible to maximize their mutual impact.

In general, the HPVO and MOH staffs work together well at the municipal level. Of those HPVO projects interviewed, virtually all refer patients to the local MOH hospital, health center or health post. Thirty-one share staff with local MOH facilities, and many depend upon MOH ambulances when seriously ill patients must be moved from the HPVO clinic to the MOH hospital. The MOH health centers and health posts also refer to HPVOs because the HPVOs are better equipped, and stocked with larger inventories of medication. Unfortunately, in some municipalities competition exists between MOH facilities and HPVO services or between two or more HPVOs in the same community. There are villages in which exist a MOH health post, a Catholic clinic, and an Evangelical clinic, all competing for patients. However, for the most part one finds a harmonious working relationship between the MOH and HPVO staffs at the municipal level.

At the departmental level there is less coordination between HPVO and MOH activities. The HPVO staff have relatively little contact with MOH staff in the departmental capital and virtually no contact with the chief of the MOH departmental services because a relatively small percentage of all HPVO patients actually need to be moved to the regional hospital. This lack of professional contact and regular communication about mutual problems and/or limitations has allowed unrealistic expectations to develop between the MOH and HPVO programs and has caused unnecessary problems and misunderstandings.

1/ Annex 5.12: Human Resources describes the TSR training program.

At the national level, with the exception of a few of the very large HPVOs such as CARE, CRS, and Project Hope, there is essentially no communication between the HPVOs and MOH. The MOH finds it difficult to deal with 150 separate HPVO entities, each with its own unique corporate structure, budget and philosophy. It is equally difficult for the HPVOs to deal with the distance and expense entailed in making trips to the Capital, especially when there is little assurance for the HPVO representative that he will be able to complete his mission at the MOH expeditiously.

Inancial Profile

The profile of expenditures between the MOH and the HPVOs is significantly different. This is due as much to the differences in the nature of the two systems as to other variables; the MOH maintains centralized, sophisticated in-patient facilities such as Roosevelt Hospital and all regional hospitals while the HPVOs operate less than ten small in-patient facilities. Principally, the HPVOs provide basic primary care services in simple facilities or in the home. Of the $22.4 million which MOH budgeted in FY 1977 for hospitals, health centers and health posts, 54% was to be spent in the Capital Metro Area. By contrast, 63% of all HPVO expenditures was spent in the Western Highlands.

Total annual HPVO expenditures are estimated at $4.8 million for medical services and $3.5 million for PL-480 food distribution. When these expenditures are combined with the $22.4 million spent by the MOH for hospitals, health posts and health centers, the national aggregate per capita expenditure for health-related activities is $5.04 per person per year. Of this total, the MOH expends $3.68, the PL-480 Food Program $0.58, and the HPVOs $0.78 per person per year.

Thus, through a combination of normal expenditures, coupled with expenditures related to the PL-480 Food Program, the HVPOs effect 27% of the national per capita expenditure for health.

In rural areas, where the MOH spends $2.22 per capita; the PL-480 Food Program $0.64; and the HPVOs $1.18, the HPVOs account for 45% of the total rural per capita expenditures for health-related activities.

Role of the HPVOs in the National Health Care Delivery System

Health needs in Guatemala, as evidenced by the major causes of death,1/ are medically most effectively addressed through basic primary care and improvement of environmental sanitation. The HPVO resources appear to be well oriented to the health needs of rural Guatemala and function efficiently. However, because the health coverage of the HPVOs is so heavily concentrated in a few areas, their health services are not well oriented to the entire rural population of Guatemala.

Currently HPVO activities fall into four categories based on the type of activity and the relationship of the HPVO with the MOH:

1. Developing or testing innovations in providing services.

2. Developing or operating a part of the national health care delivery system for which MOH plans to assume all or part of the financial support needed by the project.

3. Developing or operating health services in isolated communities for which there are no MOH plans for assuming financial support for the project.

4. Providing financial support for research and limited support for professionals studying outside Guatemala.

Although large HPVOs, such as CARE and CRS may fall into more than one category, each was assigned to only one, based upon the major focus of its activities.

---

1/ The major causes of death in Guatemala are discussed in Chapter 2.4: Indicators of Health Status, and Part 4.1.5: Communicable Disease Control.

PERCENTAGE OF HPVOs IN EACH CATEGORY OF ACTIVITY

| Category | Number of Projects* | Percentage of Total |
|---|---|---|
| 1 | 3 | 3% |
| 2 | 25 | 24% |
| 3 | 76 | 71% |
| 4 | 2 | 2% |
| TOTAL | 106 | 100% |

* Field data were collected from 42 HPVOs with 106 projects.

The majority of the projects interviewed meet the criterion for category 3; for the most part, these are small sectarian-based clinics. The projects which fit into category 2 tend to be larger and older, a mix of sectarian and non-sectarian Very few projects were assigned to category 1 because of the limited capacity of the HPVOs to evaluate their programs. This is due in large part to the absence of trained health care administrators in the HPVO programs. Those projects assigned to category 1 are projects with a large staff in Guatemala and/or significant professional backup outside of Guatemala.

Approximately a quarter of the HPVOs have some form of cost-sharing or other resource-sharing plan with the MOH. However, most HPVOs are providing health services without formal plans to transition the program after a number of years, do not have plans for sharing resources with the MOH, and do not regularly evaluate their programs.

The concensus among the HPVOs, the MOH, and USAID appears to be that the ideal role for an HPVO is as a transitionary agent, temporarily meeting a need until the local government can respond to it. The length of time necessary for such transition varies considerably between projects. However, it does appear that for a transition to occur it is necessary that there be a plan for smooth control of the project over a period of years, a system which focuses HPVO and MOH resources on the project, and regular evaluations of activities to differentiate effective from ineffective procedures. The future of HPVOs in Guatemala will depend, to a large extent, on their success in findings ways of addressing these three criteria.

## More Effective Utilization of the HPVOs

The MOH and the HPVOs can be viewed as two complementary systems working to provide health services to Guatemala. The need of the HPVOs for in-patient referral facilities and the need of the MOH facilities for the case-finding done by the HPVOs makes the two systems inter-dependent.

If the MOH and the HPVOs could begin to discuss their mutual goals, resources and needs, and could begin to work toward the development of department-wide health services plans, there is no limit to the sharing of resources that could be realized. For example,

- the PVOs could provide services which the MOH cannot afford and for which there are no trained MOH staff.
- joint PVO/MOH staff training and continuing education programs for physicians and nurses could be held on a regular basis.
- short-term physician volunteers could work in both the MOH and the HPVO facilities.
- outreach activities could be shared.
- joint health education programs for schools and communities could be planned.

Other than surveying each HPVO directly, it is virtually impossible to acquire utilization and financial data on the HPVOs. However, each month the HPVOs with in-patient facilities fill out forms for the MOH Division of Statistics in the Capital. If all HPVO facilities, in-patient and out-patient alike, were to supply utilization data which were summarized and sent to the coordinating MOH office, the MOH Area Chiefs, and the other HPVOs, a greater understanding of HPVO activity and a basis for communication could be developed.

A first step in coordinated communication is the sharing of experiences. It is essential that a mechanism be developed for the regular self-evaluation of the HPVO programs which includes extensive feedback to the MOH. Additionally, the transitionary role of the HPVOs requires that a public office be established within the MOH to maintain liaison between the MOH and the HPVOs so that (1) when it is appropriate, the services provided by the HPVO can be transfered to the MOH, and (2) the MOH and the HPVOs can plan to expand coverage to groups not currently receiving adequate services.

The challenge is to develop a forum for improved and coordinated communication between the two systems in order to facilitate a system of complementary services which makes maximum use of their mutual resources in addressing the health problems of Guatemala.

An HPVO Association

Because there has not been a specific national program to coordinate HPVO activity with MOH activity, a variety of communication and administrative problems has developed. Currently, no mechanism exists in Guatemala which specifically provides the following services to the HPVOs:

1. A forum for discussion of the mutual problems faced by the HPVOs.

2. A means for communication as a group with the MOH, IGSS, or other GOG institutions.

3. A base for the training of HPVO health administrators, auxiliaries and other staff.

4. A basis for joint HPVO/GOG health planning at the national level.

5. The professional/social environment for personal contact of HPVO staff and MOH, IGSS, and other GOG officials.

6. A center to which the HPVOs can address technical questions.

One solution to these problems is the formation of an HPVO Association in which membership would be voluntary. In addition to providing the services mentioned above, such a group could serve as a clearing house for educational materials as well as a contact point and information source for new HPVOs interested in locating in Guatemala.

The HPVO Association could also address the problem of lack of communication at the national level by assuming responsibility for the publication of a newsletter devoted substantially to MOH, USAID/G and other governmental health-related activities, as well as to the HPVO activities. El Informador, currently published by Catholic Relief Services, provides information on auxiliary training issues. The possibility should be explored of expanding the content of this publication and building upon its readership before an entirely new publication is undertaken.

The majority of health-related PVOs working in Guatemala are from the U.S. and several have USAID grants. Since the interest of the HPVOs in rural health problems corresponds with USAID priorities, it is reasonable that the USAID/G Mission assist the MOH to establish a program to coordinate HPVO activities, such as the establishment of an HPVO Association.

## Recommendations

Based on the problem analysis and subsequent discussion, the following recommendations are made with respect to the health-related private voluntary organizations in Guatemala.

Recommendation 1: ESTABLISH AN OFFICIAL REGISTRY OF HEALTH-RELATED PRIVATE VOLUNTARY ORGANIZATIONS (HPVOs) WITHIN THE MINISTRY OF HEALTH.

Perhaps the Office of the Coordinator of International Affairs (OCAI) would be appropriate. In addition to maintaining the inventory, the new MOH/HPVO Office should also be responsible for:

1. Organizing semi-annual meetings in which the MOH health area staff and the HPVOs in each Department would meet to share plans and problems.

2. Conducting regular evaluations of HPVO activity in each Department in coordination with the Area Chief of the Department, so that techniques used by the HPVO could be observed first-hand by representatives of the MOH.

3. Monitoring the on-going HPVO activity. To do this the current MOH system for collecting monthly utilization and financial data should be modified in such a way that all the HPVO data are aggregated by department and made available to the MOH regional chief of health areas and to the HPVOs through the new MOH/HPVO Office.

4. Assisting in the formalization of relations between the HPVOs and department-level MOH services. A simple plan could be developed which outlines geographic areas of coverage for HPVO and MOH services; joint use of resources; criteria for transfer of patients; and accident, disaster and other emergency procedures.

Recommendation 2: AN ASSOCIATION OF HEALTH-RELATED PRIVATE VOLUNTARY ORGANIZATIONS OF GUATEMALA SHOULD BE ESTABLISHED.

This group would include all the health-related PVOs working in Guatemala whether funded by Guatemalan sponsors or by other countries. Once established, the Association should set up an HPVO Information Clearing House and regularly publish a newsletter devoted to HPVO and MOH health activities.

Additionally, this group should undertake studies which lead to a clarification and specification of HPVO policy. Some of the 150 HPVOs in Guatemala are doing outstanding work and could serve as models for other groups. Such innovative projects should be studied and a report of both their successes and their failures distributed to other HPVOs.

## 4.2 Increasing Efficiency in the Health Sector 1/

### Problem Analysis

A multiplicity of organizations deliver health services in Guatemala through both public and private institutions. Public services are provided by the Ministry of Health (MOH), the Guatemalan Institute of Social Security (IGSS), the Office of the President, the military, the national police, and the municipalities. Private services are provided by hospitals, private voluntary organizations, physicians, pharmacies, traditional practitioners, and commercial institutions. This multiplicity of services inevitably leads to uncoordinated services, inefficiencies due to duplication, and loss of economies of scale. Analysis of the various modes of ambulatory and hospital services has yielded examples of reasonably adequate levels of efficiency as well as a number of problem areas needing improvement. The problems are often interrelated, including inadequate or inappropriate human, physical, financial and administrative resources.

### Ambulatory Care Problems

One important problem area is the low utilization rate of ambulatory care facilities in rural areas in relation to the capacity of the staff to provide service; only 22% of capacity was used in 1974, with an annual consultation rate in 1975 of .30 consultations per person per year.

Several factors contribute to this low utilization. The dispersed nature of the rural population of Guatemala requires hours of walking to reach a health post or health center. The relatively infrequent contact that the population has with the MOH facilities limits its appreciation of the available services.

An active outreach program delivered by staff based at the facility using currently unobligated time could address both of these problems.

A second alternative is the employment of outreach health promoters in each village, using locally acceptable traditional practitioners when possible or making more effective use of available health promoters.

---

1/ See Annex 5.10: Efficiency of the Guatemalan Health Sector for a detailed description of the study findings and the proposed programs.

Another strategy for increasing utilization is to incorporate the patients and their families into the provision of local services, through local Community Health Councils which provide feedback on the services and input about the population's perceived health service needs.

Increased confidence in the quality of services provided and subsequently increased utilization will be realized by improving the staffing and logistical support of the rural facilities. Since health posts serve populations ranging from 2,000 to 20,000, the more technically trained Rural Health Technician is an appropriate health worker at this level to complement the services provided by the auxiliary nurse. The importance of this is the TSR's capability to provide both extensive preventive and curative services. This approach should be supported and expanded as rapidly as possible.

Since the availability of drugs is directly proportional to the utilization of services in rural Guatemala, the inefficient drug supply system is a cause of under-utilization of rural facilities, both ambulatory and hospital. The use of a fixed quantity of drugs for all health centers and health posts regardless of facility utilization, population size, or local epidemiology, does not focus the MOH resources where they are most needed. Therefore, a thorough review of the drug distribution system and subsequent indicated changes could play a major role in improving utilization.

Many ambulatory cases which could be treated at local health facilities go directly to higher levels of care. This contributes both to the under-utilization of locally available ambulatory services and overcrowding in the hospitals. The use of formal organizational linkages by both medical professionals and patients, would improve the patterns of referral. These linkages currently exist, but are ineffective. An acceptable level of interfacility activity, maintenance of staff motivation, and therefore, efficiency, are likely only if periodic visits are made by senior staff from the department capital to the community level for the purpose of consulting and supervising the staff of the posts and centers.

Such a system of linkages can be facilitated by establishing transportation and communication links among the facilities. A program developing a radio network among facilities is now being designed and will be evaluated when it is completed and functioning. Transporting patients from rural health posts and health centers to department hospitals may require additional vehicles, such as small health center-based ambulances, or a regional dispatch system.

Hospital Problems

Regional hospitals of the MOH, especially in the metropolitan area, are characterized by overcrowding, long average lengths of stay, and low staff-to-bed ratios. For 1973 MOH regional hospitals (excluding psychiatric and TB) reported a 102.5% occupancy rate; a bed-to-population ratio of 1.4 per 1,000 population.

TABLE 4.2-A

| Country | Hospital Beds/1,000 |
|---|---|
| Dominican Republic | 2.8 |
| Nicaragua | 1.3 |
| Guatemala | 1.4 |

Admission rates are 28/1,000 population; and staff-to-bed ratios very low in the better staffed urban hospitals (e.g., Roosevelt Hospital in Guatemala City experienced the highest urban ration at 1.6 staff/bed. This level is approximately 33% of the ratio expected to effectively staff a complex sophisticated in-patient facility. Rural hospitals have very low staffing levels e.g., Huehuetenango Hospital experienced a staff-to-bed ratio of 0.4). Meanwhile, the average length of stay in 1976 was 14 days.

Very low staff-to-bed ratios make a major contribution to long lengths of stay in hospital facilities. Immediate diagnostic workups and treatment without delay cannot be achieved with a low personnel-to-patient ratio. These national averages vary significantly from hospital to hospital, rural to urban, and by type of hospital bed occupied, i.e., the 1974 Guatemala City occupancy rate for maternity beds was only 28%, and the average length-of-stay three days.

In Guatemala City, the situation is generally better in IGSS facilities than in the MOH facilities. However, in rural areas, the IGSS facilities experience lower occupancy levels than the MOH facilities. The average length of stay in the IGSS hospital in Guatemala City is only 11.6 days, occupancy levels are 72.3% in adult wards and 84.6% in children's wards, and a higher rate of admissions exists per covered population than for MOH hospitals. Whereas the personnel/bed ratio in the United States is 3.15, the ratio for all MOH hospitals is 0.66 and for IGSS 1.12; MOH ratios are only 20% of the U.S. ratios and IGSS has almost 50% more staff than the MOH to handle fewer patients. Higher staffing ratios

typical of IGSS hospitals in Guatemala, and hospitals in the U.S., contribute to the shorter length of stay and lowered occupancy rates because patients do not experience long waits before being moved within the hospitals for special treatment.

Within the next five years seven major hospital construction projects are planned in and around Guatemala City:

1. 500 beds will be build at the Military Hospital to replace the existing facilities for an estimated cost of $40,000,000.

2. 1,560 beds will be built by IGSS and MOH for an estimated cost of $50,000,000; 1,220 are to replace the existing facilities or those that were damaged in the earthquake. IGSS will build 220 beds for a new obstetric unit in the capital, 120 beds for a tramatology center in the capital, and 220 beds to replace existing in-patient facilities in the capital. The MOH will build two 400-bed units to replace the San Juan de Dios Hospital and 200 beds to replace the Antigua Hospital that was damaged during the 1976 earthquake.

While only 120 of these 2,026 beds are not replacing old beds, the facilities will undoubtedly be upgraded and will have increased manpower needs. This will place increased pressure on the existing and future pool of trained workers to staff the urban facilities and it will be difficult for the MOH to upgrade the personnel-to-bed ratio.

However, should the MOH be able to increase staffing in its facilities, an expected result would be a faster patient-turnover-rate-per-bed-per-year, and thus increased efficiency; it will, however, require a higher operating cost than is currently experienced. Equally as important, increased staffing is likely to increase the quality of care for hospital patients. The mix of personnel required and the cost of additional staffing needs are considered in detail in the Human Resources Annex to this Health Sector Assessment.

Administrative Problems

The Assessment has uncovered a number of areas in which improved management would lead to improved efficiency. In some cases, the problem lies with the legal-administrative structure itself, in others, it is a reflection of shortcomings in manpower training and recruitment. Manpower problems affecting efficiency

are multi-variate and are analyzed in detail in the section on human resources. Notable among those affecting hospital and health center functioning are the following:

1. Physicians seldom work in the health centers and hospitals the time for which they are paid. The number of patients seen divided by the total number of hours which physicians are paid to work yields a low "physician-productivity" and a high cost-per-patient.

2. Medical students, who function as "doctors" at health posts for the last six months of their university training, are poorly supervised and their potential for service is seldom realized.

3. The concentration of physicians in the metropolitan center and the shortage in rural areas is growing worse. Increasing numbers of new medical graduates continue to settle in the capital city, already saturated with physicians, or they seek employment outside of the health field.

4. The Health Area Chiefs, theoretically responsible for all MOH activities in their 24 health areas, have limited training in Public Health. Likewise, as the MOH continues to decentralize programs, they are entrusted with little authority for carrying out a growing agenda of responsibilities.

5. Compensation for physicians is less in the MOH than in IGSS and in private practice. This leads to competition within the public sector for well-trained, experienced physicians.

Since the administrative-professional aspects of personnel inefficiencies in the system are so varied, no single action would deal with all of the inefficiencies. Improving the public health training of Health Area Chiefs and giving them the administrative and supervisory authority to provide leadership is one useful approach. In order to attract capable leadership to these crucial Health Area Chief jobs, additional salary incentives and merit system employment policies should be implemented. Additional compensation for increasing efficiency in the use of facilities under their responsibility should also be considered. More diligent supervision by Area Chiefs and merit promotion of staff physicians might resolve the problem of doctors short-changing the system in the number of hours worked.

Auxiliary Health Worker Problem

Efficient use of auxiliary staff by health centers and hospitals also could improve current productivity levels. Delegation of appropriate tasks to auxiliaries is to be a major concern of the Rural Health Evaluation Project 1/ currently under way. Requiring longer rural service of medical students and newly graduated physicians, combined with supervisory training of Health Area Chiefs, could overcome deficient staffing and supervisory capability, as well as contribute to the recruitment of more physicians from the urban to the rural areas.

Both the GOG and USAID recognize the need to strengthen rural health services. The TSR program, rural hospital rehabilitation, and other programs developed under previous USAID loan assistance have become part of the MOH program entitled: Strengthening of Rural Health Services.

Financing Problems

Numberous studies 2/ in this Assessment have documented the need for strengthening the total health system, in terms of finances and administrative improvement. For example, expenditures by the MOH in recent years consistently have been only 1% of the Gross Domestic Product.

A startling conclusion of the study of expenditures in the health sector is that nearly 40% of all expenditures are in the private sector, while MOH expenditures account of less than 20% of total health care expenditures. 3/ Thus, if substantial improvements in efficiency are to be made in Guatemalan health services, attention must be given to more than the MOH services. The exceptionally large private sector which provides medical care creates enormous social inequities and generates a vicious circle

---

1/ Funded by USAID, the Guatemalan Academy of Sciences is conducting a five-year investigation into all aspects of Rural Health Care including productivity of professionals and auxiliaries.

2/ See Annexes 5.1, 5.9, 5.10 and 5.12.

3/ These percentages are based on a gross approximation of private expenditures of $76.4 million; see Annex 5.10.

of incentives, which continuously weaken the public health services sector. While deliberate restrictions on the private practice of medicine or private drug purchases is not recommended, it must be realized that excessive private spending impedes the efficiency and stability of the public sector by attracting a disproportionate share of the trained, experienced workers. At some point limits must be set which are adequate to meet the needs of the private patient.

Interorganizational Problems

Interorganizational coordination is another area where increased efficiency could be realized. A large number of public agencies provide health care. However, since IGSS and MOH account for over 90% of the resources, attention should be focused on their cooperative use of resources. In fact, both have rather high administrative costs and problems of low utilization; for MOH it is in rural ambulatory units, for IGSS in rural hospitals. Cases can be found of crowded MOH units with unfilled IGSS units nearby. Additionally, the IGSS programs are both better financed on a per-capita basis and better staffed.

The coordinated use of rural hospitals between the MOH and IGSS could be economical. At present IGSS has contracts with ten MOH rural hospitals for care of insured trauma patients. The converse type of contract might be concluded in places, such as Escuintla, where the IGSS hospital is half-empty while the MOH hospital is badly overcrowded. Comments are frequently made about "duplication" of hospital facilities in Guatemala, but because of the differences in services provided by IGSS and MOH, the problem is more accurately a lack of coordination and inefficient use of available facilities.

Improved institutional relationships in other Latin American countries have ranged in approach from minimal coordination between Social Security and Ministry of Health to complete integration, as in Chile. Guatemala itself has minimally experienced some of these relationships, such as the joint use of hospital and joint planning committees. To realize significant economies of scale in administrative costs, and in a shared pool of manpower and facilities, requires much more of agencies than simple coordination.

In the final analysis, however, substantive integration will require decision at the highest political levels and commitment to its success at all administrative levels.

Summary

The goal is to attain a greater output of needed services in relation to the input of resources in order to improve health services. The following are the major problems, evident in Guatemala health services, which must be addressed if this is to be accomplished.

1. The rate of utilization of ambulatory care facilities in rural areas is low. This applies to health centers and health posts of the MOH, as well as to health stations of IGSS. As a result, the health personnel are used at less than their full capacity and the cost-per-unit of service is unreasonably high.

2. Regional hospitals of the MOH, both in the metropolitan center and in the rural departments are overcrowded. Their average length-of-patient-stay is very long and their personnel-to-bed staffing ratios are low.

3. Hospitals of the IGSS are well-occupied in the metropolitan center, but are seriously under-utilized in the peripheral departments, where only trauma cases are served. To maximize rural hospital occupancy, minor trauma cases are kept hospitalized longer than necessary, despite the wastage of this practice.

4. The availability of needed drugs and supplies, in both ambulatory care units (especially health posts) and hospitals of the MOH outside the metroplitan center, is often inadequate.

5. The professional linkages among health posts, health centers, and hospitals, while theoretically intended to be continuous are very weak. This has many negative consequences for the efficient performance of personnel and the quality of health services.

6. Physicians seldom work for the full allotment of time for which they are paid each day in the health centers, and to some extent in the hospitals. As a result, their output of service or "productivity" per hour paid is low.

7. Medical students, who function as "doctors" at health posts for six months of their university training, are poorly supervised, so that their potential for service is seldom realized.

8. The concentration of physicians in the metropolitan center and the shortage in rural areas, a serious problem in Latin America, is growing even worse in Guatemala. Increasing numbers of new medical graduates continue to settle in the capital city, where the doctor supply is already saturated.

9. Insofar as categorical expenditures can be identified, those allotted for preventive and ambulatory services are low, in relation to those devoted to hospitalization. In addition, hospital per-capita expenditures are inappropriately low.

10. Expenses for administration in the MOH and IGSS programs, as a percentage of all costs are visibly very high because of the administrative costs of the separate units are high. While less visible in other sub-systems (private and public) they are also probably excessive because of the multiplicity of units and individual health care providers.

11. The access to health care of several hundred thousand workers (and their families) on agricultural fincas is extremely poor, as are their basic living conditions.

12. The Health Area Chiefs, who are theoretically responsible for all MOH activities in their 24 territories, are poorly trained for their mission. Likewise, they are entrusted with little authority for carrying out their responsibilities. Many of the problems noted above result from this basic problem.

13. The exceptionally large private economic sector of medical care creates not only enormous social inequities, but it generates a circle of incentives that continuously weaken the public sector of health services. By attracting a disproportionate share of the trained manpower, which in turn makes care in the private sector more appealing, more people use it; the more patient demand there is, the more private facilities are developed which need skilled manpower, and so the cycle continues.

## Recommendations

Based on the problem analysis and the subsequent discussion of alternatives for increasing efficiency in the health sector in Guatemala, the following recommendations are made:

Short-term Recommendations

This group of recommendations is oriented to the application of two basic administrative principles:

a. Reasonable management resources.
b. Central planning and decentralized implementation.

Some proposals for improved efficiency inevitably overlap with others. Likewise, certain of the problems require several actions for their solution, while certain actions may help to correct several problems.

Recommendation 1: IN ASSOCIATION WITH EACH HEALTH POST AND HEALTH CENTER A LOCAL "COMMUNITY HEALTH COUNCIL" CHOSEN BY THE PEOPLE THEMSELVES SHOULD BE ORGANIZED.

These councils should be consulted on the health needs perceived by the population and should have a specific role in selection of persons to serve as "health promoters" who encourage people to use the health facility. Once formed, the committee could be the focus and/or catalyst for programs for rabies, TB, water systems, and a variety of public health programs.

Recommendation 2: TO COPE WITH THE PROBLEM OF PATIENT TRANSPORTATION, ALL HEALTH POST PERSONNEL SHOULD SCHEDULE VISITS TO SURROUNDING VILLAGES OR SETTLEMENTS ONCE A MONTH OR OFTENER.

Supervisory services would also spread the message about the availability of the health post (between the monthly visits).

Recommendation 3: TO SUPPORT THE CURRENT TREND TO ENHANCE THE TECNICAL CAPABILITY OF HEALTH POSTS, EACH SHOULD BE STAFFED ULTIMATELY WITH A TSR, TO COMPLEMENT THE AUXILIARY NURSE.

The Government of Guatemala has decided that all health posts should be staffed with an auxiliary nurse and a Rural Health Technician (TSR). The TSR should be aided by a health promoter and backed up by a Community Health Council. The functions of the TSR at the health post must be both therapeutic (clinical) and preventive. In accordance with his training he should treat the sick but he should also promote improved environmental sanitation and health education. Worldwide experience suggests that rural people are more receptive of preventive services if they are furnished by the same person who effectively treats their ailments. Yet, the TSR must be careful not to allow the demands for medical care to stand in the way of his essential preventive activities.

Recommendation 4: PROFESSIONAL AND ADMINISTRATIVE LINKAGES BETWEEN HEALTH POSTS AND HEALTH CENTERS SHOULD BE FORGED AND IMPLEMENTED SYSTEMATICALLY.

Visits of two to three hours should be made to the health post, at least fortnightly, by a physician from the nearest health center, for both supervision and consultation. Isolating the TSR or any health worker at a health post is destructive of motivation and quality of performance.

Recommendation 5: SIMILAR LINKAGES SHOULD BE DEVELOPED IN EACH HEALTH AREA BETWEEN THE HEALTH CENTERS AND THE MAIN HEALTH AREA HOSPITAL.

The supervising physician should visit each health center, for supervision and consultation, at least once a week. Likewise, the health center doctor or doctors should be invited to visit the hospital for two to three-day periods once a month to provide professional stimulation and technical assistance.

Recommendation 6: EACH HEALTH AREA SHOULD BE HEADED EVENTUALLY BY A PHYSICIAN WITH ADEQUATE PUBLIC HEALTH TRAINING.

Only with such training can one expect the type of leadership required to oversee the implementation of the linkages. Correspondingly, these Health Area Chiefs must be entrusted with responsibility to supervise the dynamic relationships recommended. If this health official has any clinical responsibilities in the Health Area hospital, they should be minimal. The hospital's business affairs should be conducted by an Administrative (non-medical) Officer.

Recommendation 7: IN ORDER TO PROVIDE INCENTIVES TO HEALTH AREA CHIEFS, GOOD WORK SHOULD BE REWARDED WITH SALARY INCREMENTS AND RECORDS SHOULD BE KEPT ON ATTENDANCE AT HEALTH POSTS AND HEALTH CENTERS IN EACH LOCAL HEALTH AREA.

The central Ministry of Health should compile rates for each area, using the area population as the denominator. Annually, awards and salary increases should be given to a) the area with the highest utilization rate, and b) the area with the greatest degree of improvement over the previous year. Since such competitive incentives are subject to abuse, the central MOH must be alert to detection of any falsified records.

Recommendation 8: IN THE HEALTH CENTERS THE DOCTORS MUST HAVE TIME TO MAKE THE PERIODIC VISITS TO HEALTH POSTS RECOMMENDED ABOVE.

This can be achieved only by their making adequate delegation of tasks to the auxiliary nurses. In larger health centers every effort should be made to assign a fully-trained professional nurse.

Recommendation 9: TO FOSTER PROPER ORGANIZATIONAL LINKAGES AMONG AMBULATORY CARE UNITS (BOTH HEALTH POSTS AND HEALTH CENTERS), PATIENTS LIVING MORE THAN A SHORT DISTANCE (PERHAPS FIVE KILOMETERS) FROM A HOSPITAL, SHOULD BE ENCOURAGED TO USE THE AMBULATORY UNIT CLOSEST TO THEIR HOME.

At present many patients simply bypass the nearby health post or health center and go directly to the hospital for any and all problems. This leads to excessive pressure on hospitals, and accounts in part for the low utilization of the ambulatory units. The pattern of referral recommended would counteract this wasteful practice. Promoters should encourage the proper use of the referral system.

Recommendation 10: TO ENCOURAGE THE PROPER LINKAGES AMONG FACILITIES, TRANSPORTATION SHOULD BE PROVIDED AS REQUIRED TO MOVE PATIENTS TO A HOSPITAL. THERE SHOULD ALSO BE RADIO COMMUNICATION BETWEEN ALL HEALTH POSTS, HEALTH CENTERS AND THE HOSPITAL.

Recommendation 11: THE SYSTEM OF PHARMACEUTICAL SHIPMENTS FROM A CENTRAL DEPOT TO THE PERIPHERAL UNITS SHOULD BE REVISED.

It may be sensible to dispatch certain batches of drugs and supplies monthly, without an order being sent in, but provision should also be made for responding properly to regular monthly orders sent in from the health posts and health centers. One of the responsibilities of the health center doctor should be regular submission of these orders, based on his weekly visits to the health posts.

Recommendation 12: REGARDING THE USE OF HEALTH PROMOTERS TO ATTRACT INCREASED ATTENDANCE AT THE AMBULATORY CARE UNITS, AN EFFORT SHOULD BE MADE TO RECRUIT SOME OF THESE FROM "CURANDEROS" WHO ARE NOT TOO OLD TO CHANGE.

The hazards of such a policy are obvious, but in Africa and elsewhere, the World Health Organization has recommended liaisons between modern and traditional health care providers. Perhaps some role can be found for the traditional healer, in actual care of the patient, insofar as most illnesses have a psychological component.

Recommendation 13: THE PROBLEM OF DOCTORS "SHORT-CHANGING" THE MOH OR IGSS PROGRAMS BY SPENDING LESS TIME THAN THEY ARE PAID FOR SHOULD BE ADDRESSED.

One possibility is to pay, not on a schedule of two or four hours-per-day or the like, but rather on the basis of the hours actually worked each day. A "punch-clock" would obviously not be feasible, but one might expect that, with diligent supervision from the Health Area level, honest reporting on a "monthly time-sheet" might eventually be achieved. Relating the number of patients seen to the hours of work reported would offer a rough basis for identifying deviance.

Recommendation 14: THE SALARIES OF DOCTORS AND OTHER HEALTH PERSONNEL SHOULD BE EQUALIZED ACROSS THE MOH AND IGSS PROGRAMS, AS CLOSELY AS POSSIBLE.

The Colegio Médico favors such a policy.

Recommendation 15: TO RAPIDLY PROCESS THE DIAGNOSTIC WORKUP OF PATIENTS AND TO GIVE TREATMENT WITHOUT DELAYS REQUIRES MORE HOSPITAL PERSONNEL THAN ARE NOW FOUND IN BOTH SMALL AND LARGE GUATEMALA HOSPITALS.

Correction of overcrowded hospitals can hardly be expected without decreasing lengths-of-patient-stay, and the latter can hardly be achieved without increasing the ratio of hospital personnel-to-patients. Inadequate laboratory staff or non-operating X-ray equipment, for example, cause frequent bottlenecks in the management of cases. While such personnel increases would also raise expenditures, they would increase efficiency since more patients could be served per year in the same number of beds. One should not harbor the illusion that strengthened ambulatory services will necessarily lead to reduced hospital utilization; some hospital admissions may be prevented, but a greater number are likely to be promoted, both children and adults, could be discharged to "midway" facilities for extended care; this would apply, for example, to a child recovering from a severe malnutrition syndrome or to an old man recovering from a stroke. Such units could reduce the pressure on existing acute facilities. A few such convalescent facilities of this nature could be incorporated into regional hospitals on a trial basis.

Long-term Recommendations

Just as the above short-term recommendations involve the two basic principles of good management and decentralization, long-

term improvements in health care efficiency involve two other basic principles:

a. Strengthening the overall public sector of health care.
b. Achieving maximum integration of services.

It is not utopian to formulate long-term recommendations for Guatemalan health services, even though their effectuation would obviously depend on larger political developments. These long-term recommendations should be presented, if only to protect health leaders against frustrations at what may be the limited accomplishments possible through effectuation of the short-term recommendations.

Recommendation 16: SUCCESSFUL IMPLEMENTATION OF THE PREVIOUS 15 RECOMMENDATIONS WILL REQUIRE ENLARGEMENT OF THE PUBLIC SECTOR HEALTH SERVICES IN THE LONG RUN.

The achievement of the health plan objectives implies an increase in costs for the public sector. The customary method of reaching such an objective is to increase taxes which can channel funds toward meeting the socially desired objectives. It would be illusory to overlook the eventual need for such modifications in tax policy, if efficiency in the use of health resources is to be successfully achieved. Whether the source is more tax revenue or redistribution of current revenues, it is obvious that the public part of the sector will require substantially more resources in the future.

Recommendation 17: BY DECISION AT THE HIGHEST LEVEL THE TWO MAJOR PUBLIC HEALTH SERVICE PROGRAMS, MOH AND IGSS, SHOULD EVENTUALLY BE INTEGRATED.

This is the trend in several Latin American countries and coordinated activities have been initiated in Guatemala. Successful approaches to integration of social security and the Ministry of Health differ in Latin America. In Chile the two systems were completely integrated in 1952 after their separate operation for thirty years. In Costa Rica integration has recently been achieved by assigning all personal health service facilities to Social Security, while the Health Ministry provides environmental sanitation, health education, planning and regulatory services. Panama has integrated on a province by province basis. Colombia is now actively moving toward integration. If a high level decision is made, Guatemala could surely design its own strategy. Such action would clearly save on the large current administrative costs of both agencies, as well as facilitate efficient use of scarce resources throughout both sub-systems of health care.

Recommendation 18: GUATEMALA SHOULD MOVE TOWARD A MERIT SYSTEM IN APPOINTMENT OF ALL HEALTH PERSONNEL BELOW THE LEVEL OF THE ELECTED MINISTER OF PUBLIC HEALTH.

Far too many appointments are now made on the basis of political affiliations, without regard to qualifications for public health roles. This is especially important at the level of Health Area Chiefs.

Recommendation 19: SINCE PROFESSIONAL EDUCATION IS PUBLICLY FINANCED IN GUATEMALA, IT WOULD BE REASONABLE TO REQUIRE A PERIOD OF ONE OR TWO YEARS OF RURAL SERVICE OF ALL GRADUATE PHYSICIANS, AS NOW DONE BY MANY COUNTRIES TO COPE WITH THE MALDISTRIBUTION PROBLEM.

Higher salaries and other fringe benefits should be offered to hold physicians in rural areas, as done in the Scandinavian countries. An alternative policy would be to bar new medical graduates from settlement for five years, or thereabouts, in the Capital City, as Quebec, Canada, does regarding the city of Montreal or as Tunisia does regarding the city of Tunis. (It may be noted that many doctors in Guatemala City are barely making a living, in light of the overcrowded profession there.)

Recommendation 20: SOME DEGREE OF AUTHORITY SHOULD EVENTUALLY BE GRANTED TO THE AREA HEALTH CHIEF OVER ALL PUBLIC AND QUASI-PUBLIC (SUCH AS VOLUNTARY HEALTH AGENCIES) HEALTH SERVICES.

Only at this local level can real integration be achieved, and with it improved efficiency.

## 4.1 Maintenance Services Requirements 1/

### Problem Analysis

Analysis of the status of Ministry of Health (MOH) facility maintenance in Guatemala indicates that the health sector will continue to operate with growing inefficiency and will need to replace prematurely its entire equipment infrastructure if the present system of inadequate maintenance continues. A substantial percentage of the equipment in MOH health facilities is either not being used; being improperly utilized and/or maintained; or has reached a stage of complete disrepair. In almost every hospital or health center included in the study new equipment purchased by the Government of Guatemala (GOG); financed by either international loans or from the GOG's own programs, has not been installed. In some cases equipment has arrived damaged and is unusable; in others it does not match the primary energy source or other design constraints of the facility and major alterations will be required if the equipment is to be operational.

The lack of maintenance affects all areas of the health service support base and dramatically reduces the quantity and quality of care provided by the system.

For example, due to lack of maintenance, or the regular testing of the X-ray alignment or calibration of the controls, X-ray equipment is rapidly losing its value as a diagnostic tool. Sterilization equipment and laundry facilities operate at reduced efficiency and lowered standards because of inadequate maintenance support, especially with respect to tools and spare parts. Maintenance support of most laboratories is virtually non-existent; equipment is inadequate to perform tests in a reliable manner and inadequate cleaning equipment makes contamination of specimens likely. In this environment, diseases contracted from being in a health facility become a significant consideration in health facility management.

Maintenance and repair manuals are not available; spare parts are difficult to acquire; appropriate tools are not available; and virtually all maintenance is performed at the convenience of the private vendors/distributors of the equipment. A

---

1/ See Annex 5.11: Health Facilities Maintenance, for a more detailed analysis of the problem and the proposed programs and cost estimates.

shortage of engineers and technical maintenance personnel oriented toward hospital facilities and equipment further constrains the MOH maintenance program. Additionally, other sectors of the government, such as the Guatemalan Institute of Social Security (IGSS), Bienestar Social, and the military, as well as private hospitals, clinics and voluntary organizations, duplicate health services and compete for the use of the limited group of trained maintenance personnel which does exist.

Data Collection and Analysis Needs

Specific data do not exist within the MOH on equipment inventories or costs of maintenance. There is no centralized collection and analysis of data describing the maintenance costs for MOH facilities and equipment. The MOH budget for the support and maintenance of facilities lists planned expenditures for materials and supplies but does not indicate how the materials will actually be allocated to the maintenance and repair functions. Additionally, the system used by the MOH for accumulating real expenditures does not allow the aggregation of expenditures solely used for maintenance.

Inventories of facilities and equipment are maintained only in the Comptrollers Office to substantiate capital assets. There are no lists indicating the actual condition of facilities and equipment, nor the age of the equipment and its life expectancy. As a result, the MOH budget for maintenance is largely arbitrary.

Financial Implications

Because there has been no regular maintenance program, buildings and equipment will have to be repaired in order that their performance can be maintained. The Assessment was not able to make a detailed list of all the repairs needed, but it is estimated that $13 million is needed to bring the existing facilities and equipment up to a level from which they could be adequately maintained.

Once the facilities are at a sustainable maintenance level, an annual maintenance budget may be developed. The annual cost of maintenance will depend on the alternative maintenance program design selected to provide the service; however, an estimate can be made.

The maintenance techniques for sophisticated medical facilities and equipment in developing countries is very similar to

that of the developed countries, so maintenance staff and equipment needs can be projected, based on the experiences of other countries. Recent experience in El Salvador indicates that Guatemala would have to spend approximately $9 million annually just to maintain its hospitals and medical equipment properly. In the United States, it is common to estimate the level of maintenance expenditures as 5% of the initial investment in facilities and equipment. If this were applied to Guatemala, with approximately $300 million in equipment and facility investment, a $15 million annual expenditure would be indicated. It is reasonable to assume that maintenance expenditures in Guatemala will fall within the range of these two examples, but probably closer to $9 million because of the lower salary levels required in Guatemala compared to the United States. The exact cost will depend upon the alternative selected to provide the maintenance services.

Organization of a Maintenance Program

The poor condition and/or inefficient use of equipment appears to be a direct result of the lack of a centralized maintenance program to plan or implement the services necessary to maintain the physical facilities and equipment already in existence, and to systematically plan the construction of, and equipment for, new facilities. A national maintenance program which includes the following components is needed:

1. Centralized administration, planning, and coordination.
2. Regional capability and logistical support sufficient to provide prompt response to requests for assistance from all health facilities.
3. Training of high, mid and low-level maintenance technicians in both general maintenance skills and highly specialized fields, such as X-ray, clinical laboratory equipment.

Such a national program might be provided in a variety of ways. First, a program might be implemented within the MOH. Second, an independent institute might be established with which the MOH, IGSS, the military, and other public organizations would contract for services. Third, services might be contracted from private companies.

Establishing a program within the MOH would have the advantage of developing capacity within the institution responsible for the majority of the health facilities in Guatemala, i.e., those responsible for the provision of health services would also be responsible for insuring that the equipment was properly maintained.

However, the MOH does not have an encouraging record in maintenance programs.

An independent institute would have the advantage of being specialized in maintenance services and able to serve all health institutions that need support, e.g., MOH, IGSS, the military, and health-related private voluntary organizations. However, an independent institute would not contribute to the development of maintenance capacity within the health services organizations, and the coordination necessary to ensure the level of responsiveness needed between an independent institute and various health facilities is a complex management task.

Alternatives one and two would make it possible to create a decentralized rural service system, which could stock spare parts, provide regular preventative maintenance and instruct machine operators in proper operator-level maintenance.

Contracts with private companies have the advantage of usually having staff adequately trained in the specialized equipment sold by the company. In addition, the company generally stocks spare parts and thus, would relieve the MOH from purchasing and stocking large inventories of parts. However, private companies have virtually no staff outside of Guatemala City, and rural facilities must wait for technicians to be sent from the Capital. This concentration of service capacity in Guatemala City makes it very difficult for a private company to do preventative maintenance on equipment, and service usually consists of repairs when the equipment breaks down. Two final issues for consideration are: that the MOH has no trained maintenance personnel, which makes it difficult to monitor contractor performance and creates a threat of uncontrollable costs, and private contractors have the potential for being more costly in the long term than in-house capacity.

Any maintenance program must address the following key tasks, currently unattended, in the area of administration, planning, and coordination:

1. Maintenance of sophisticated facilities and equipment, including third-echelon repair functions.

2. Logistic support of the health maintenance services, the collection, analysis and review of equipment operational costs and life expectancy in order to ensure economy of operations, the adequate stocking of spare parts, development of the maintenance budget, and the development of statistical information necessary for planning future budget requirements.

3. Making Planning-level Inputs into health investments for improvements, alterations, new construction and new equipment purchases.

4. Coordination and Liaison with other GOG agencies, and the private sector to achieve maintenance efficiencies and explore possible cross-servicing arrangements for health facilities and health engineering services.

5. Training of technical maintenance personnel in conjunction with those responsible for training.

6. Vehicle Repair and Maintenance, including the economic repair and maintenance of vehicles and the storage and dissemination of fuels and lubricants.

7. Special Projects, such as the development of water resources, water pollution control and solid waste handling in selected areas. A staff able to perform the first six functions mentioned above will be capable of providing back-up support of an engineering nature to various health programs.

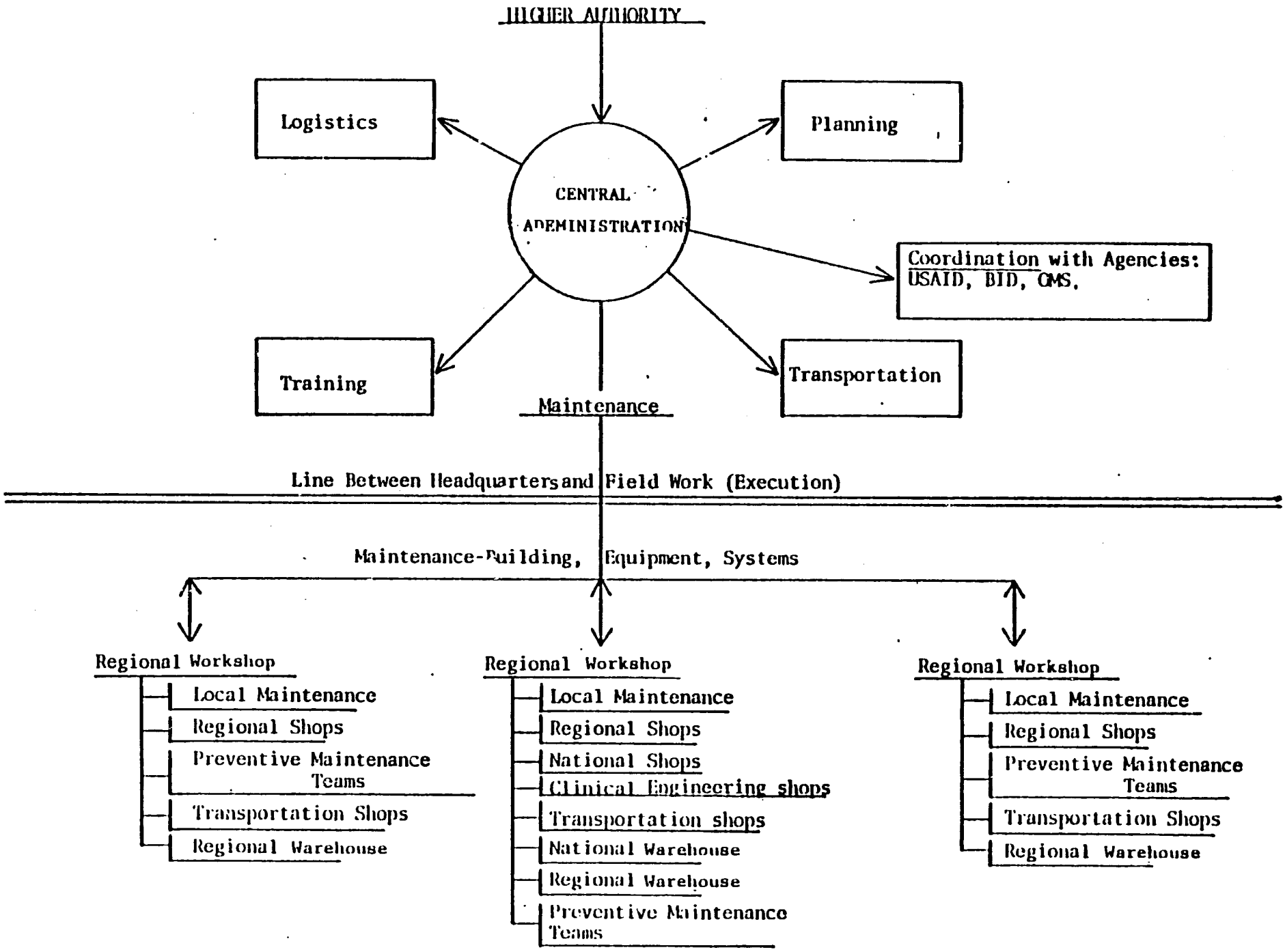
One organizational alternative for performing the required maintenance functions is shown on Table 4.3.-A.

In order to insure that maintenance is performed adequately and effectively in all parts of the country, decentralized maintenance capability is essential to respond throughout the widely scattered health delivery system, especially at regional and local levels.

The physical aspects of this system should consider such functions as space for maintenance activities; logistics support for moving maintenance personnel and parts to health facilities, and equipment from facilities to a central maintenance facility warehouse; facilities for spare parts and supplies; and repair and testing of equipment.

Training

The maintenance program must also provide for technical training of personnel. The MOH is faced with three serious problems in staffing a health equipment and facilities maintenance program in Guatemala.




AN EXAMPLE OF AN ORGANIZATIONAL CONCEPT FOR PERFORMING REQUIRED MAINTENANCE FUNCTIONS

TABLE 4.3-A

1. The combined demand of urban industrialization and general earthquake recovery is absorbing the competent pool of maintenance manpower which is available and paying higher wages than are paid in the public sector.

2. There are too few trained persons from which to select a maintenance staff for the sophisticated hospitals that now exist and that are planned for the future.

3. Inadequate attention is being given by the MOH to the long term development and training needs of health services maintenance personnel.

No viable solution to the first problem is apparent without an increase, to an adequate level, in the absolute number of trained technicians for both the private and public manpower market.

However, it is possible to begin to resolve the second and third problems. As part of a national maintenance program, a training office could be developed to train existing health personnel and newly recruited employees in specific maintenance tasks. The majority of such training would be short-term and intensive. Pledges requiring continued employment in the public sector would be exacted to limit personnel attrition.

In training beyond that of a low-level technician, personnel would have to be sent to one of a variety of international training programs that prepare the engineers needed to administer natinnal maintenance programs. For these highly qualified people a salary incentive system, perhaps possible through contract employment status, would almost certainly be required to assure their continued availability to the public sector.

An alternative to establishing a training office would be to contract most technician training to INTECAP, the Technical Training Institute within the Ministry of Labor. Although a relatively new organization, INTECAP has demonstrated that it can effectively prepare technicians for specific tasks. The basic issue will be the capacity of the national maintenance program to articulate to INTECAP its training needs in sufficient detail to allow INTECAP to develop a training program. The same system of incentives as described above would be required to assure the continued employment of these trainees in the public sector. Considering the low technical capability from which the MOH would begin to develop an in-house training capability, alternative two is preferred.

Technical Assistance Needs

Outside technical assistance will be required to augment local resources in implementing health facility maintenance activities.

One alternative is to contract for competent hospital maintenance engineers and other personnel to advise in the development of the maintenance program and to ensure that the program is conducted in a progressively efficient manner.

A second low-cost and low-key technical assistance alternative may be to solicit a Peace Corps program in Hospital Engineering. Peace Corps hospital maintenance programs exist in Nicaragua and El Salvador and are very successful in training persons at the hospital and health center levels.

However, it is clear that neither alternative will produce the needed results without a clear Government of Guatemala decision to improve its maintenance capability, including the provision of substantial budgetary resources and personnel.

The technical assistance available through the Pan American Health Organization (PAHO) also should be considered. PAHO has developed particular expertise in maintenance-system development through its program in Venezuela, and has a large backup support staff in all areas of hospital engineering.

Recommendations

Based on the Problem Analysis and the subsequent discussion of proposed programs and alternatives, the following recommendations are made with respect to health facility maintenance needs in Guatemala:

Recommendation 1: A STUDY SHOULD BE UNDERTAKEN TO DESIGN A NATIONAL MAINTENANCE PROGRAM WHICH WOULD SPECIFY ITS FUNCTIONAL RESPONSIBILITIES AND THE ADMINISTRATIVE AND ORGANIZATIONAL CONFIGURATION WHICH BEST MEETS THE GOVERNMENT OF GUATEMALA'S SHORT AND LONG TERM MAINTENANCE NEEDS AND FINANCIAL CAPACITY.

Recommendation 2: THE GOVERNMENT OF GUATEMALA SHOULD ESTABLISH A NATIONAL HEALTH FACILITIES AND EQUIPMENT MAINTENANCE PROGRAM BASED ON THE PRINCIPLE THAT ALL FACILITIES AND EQUIPMENT ARE TO BE MAINTAINED IN A MANNER THAT WILL MAXIMIZE THEIR USEFUL LIFE; THAT MAINTENANCE SERVICE AND LOGISTICAL SUPPORT SHALL BE DEPLOYED SO AS TO PROVIDE TIMELY RESPONSE TO REQUESTS FOR ASSISTANCE; AND

STAFF TRAINING WILL BE ADEQUATE TO MEET THE SHORT-TERM TECHNICAL AND LONG-TERM PROFESSIONAL NEED OF THE MAINTENANCE SYSTEM.

Recommendation 3: IN ORDER TO STAFF A HEALTH FACILITIES AND EQUIPMENT MAINTENANCE PROGRAM A SHORT-TERM TECHNICAL MAINTENANCE TRAINING COURSE SHOULD BE DESIGNED WHICH INCORPORATES THE FOLLOWING ELEMENTS:

1. A TECHNICAL TRAINING PROGRAM IN GUATEMALA TO MEET THE IMMEDIATE HEALTH FACILITIES MAINTENANCE PERSONNEL NEEDS.

2. A SCHOLARSHIP PROGRAM FOR THE UNIVERSITY-BASED TRAINING ABROAD OF ENGINEERS AND THE SHORT-TERM TRAINING OF SPECIALIZED TECHNICIANS, LOCALLY OR ABROAD.

3. A PROGRAM TO OBTAIN MAINTENANCE MANUALS FOR TRANSLATION TO SPANISH, AND DISSEMINATION TO MINISTRY OF HEALTH SITES.

Recommendation 4: FOREIGN TECHNICAL EXPERTISE SHOULD BE SOLICITED DURING THE DESIGN, FORMATION AND IMPLEMENTATION OF HEALTH FACILITIES MAINTENANCE PROGRAM AND THE TRAINING PROGRAM.

Recommendation 5: THE GOVERNMENT OF GUATEMALA ACCOUNTING SYSTEM SHOULD BE ADAPTED TO ENABLE THE COLLECTION AND ANALYSIS OF DATA RELATED TO MAINTENANCE COSTS AND INVENTORIES IN ORDER TO PERMIT ADEQUATE BUDGETING, PLANNING AND INVENTORY CONTROL.

## 4.4 Human Resources 1/

### Problem Analysis

The human resources sector of the Guatemalan health services network affects almost every other sector addressed in the Guatemala Health Sector Assessment.

The Government of Guatemala recognizes that "the shortage of all categories of health personnel and their inadequate distribution is one of the major obstacles to the development and upgrading of national health services and that as a result, these shortages constitute a threat to the success of national health planning." 2/ Table 4.4-A presents a comparison of the rates of three major categories of health workers per 10,000 people in Guatemala with those in three other Latin American countries.

The low rates in Guatemala are complicated by the poor distribution of professional health workers. The skewed distribution in favor of the metropolitan areas is shown in Table 4.4-B.

In addition to the shortage of and inadequate distribution of health personnel, the Guatemalan government has identified its priority health-manpower objectives as:

coordination between training institutions and the employers of the health manpower.

a system of career growth and development.

a system of health personnel training and distribution based on national-level development planning and basic health needs.

continuing education.

preparation of personnel specially adapted for work at each level of the health care delivery system.

the training of auxiliary health workers for optimum coverage of rural areas at a realistic cost.

---

1/ See Annex 5.12: Human Resources, for a more detailed analysis of the problem and the proposed programs.

2/ Secretaría General del Consejo Nacional de Planificación Económica, Plan Nacional de Salud, 1975-1979, Tomo I.

TABLE 4.4-A

COMPARATIVE HEALTH WORKER RATES IN FOUR LATIN AMERICAN COUNTIRES
(per 10,000 population)

| | Physicians | Nurses | Auxiliary Nurses |
|---|---|---|---|
| ARGENTINA 1972 | 20.9 | 6.1 | 10.0 |
| COSTA RICA 1973 | 7.0 | 4.6 | 16.8 |
| DOMINICAN REPUBLIC 1974 | 3.8 | 0.7 | 7.0 |
| GUATEMALA 1973 | 2.2 | 1.3 | 6.5 |

Source: Health Sector Assessment, Dominican Republic, February 1975. Health Sector Assessment, Nicaragua, February 1976.

TABLE 4.4-B

MINISTRY OF HEALTH PERSONNEL: PERCENTAGE DISTRIBUTION BY METROPOLITAN AREA AND ALL OTHER AREAS

| | Department of Guatemala | | All Other Departments | |
|---|---|---|---|---|
| Doctors | 505 | 65% | 276 | 35% |
| Dentists | 50 | 60% | 34 | 40% |
| Graduate Nurses | 311 | 63% | 186 | 37% |
| Auxiliary Nurses | 1,463 | 53% | 1,284 | 47% |
| Sanitary Inspectors | 60 | 36% | 108 | 64% |
| X-ray Technicians | 50 | 63% | 30 | 37% |
| Nutritionists | 6 | 60% | 4 | 40% |

Source: Department of Human Resources, Ministry of Health, 1974.

Gross disproportions exist (a) between the geographical distribution of health workers and the populations to be served and (b) between the kinds of activities performed (i.e., curative or preventive) in terms of needs and of maximizing cost-effectiveness. Given these two basic issues, interventions which might be considered in the development of human resources are in the areas of economics, traditional medical practice, data collection, training and auxiliary health workers.

Economic Considerations. Health manpower models based on service or normative considerations, which do not simultaneously address the availability of or cost of providing trained manpower, often cannot be successfully implemented. For example, analysis indicates that the human resources required to staff the new health facilities to be constructed under the most recent IDB loan are likely to consume a disproportionately large amount of Ministry of Health (MOH) resources at the expense of other less visible programs. If no counterbalancing measures are taken, this siutation will result in reduction of preventive services, such as outreach and education.

When funds are limited and likely to continue so, it is necessary to make decisions, based on objective evidence, about the most appropriate health care delivery model and the numbers and kinds of high-level, high-cost professionals who should be employed vis-a-vis the numbers of low-cost, lower-level auxiliaries. The experience of many developing countries indicates that maximum use of auxiliaries and minimum use of physicians is the least expensive, most effective method of providing rural health care. In rural Guatemala, alternatives for increasing the auxiliary-to-physician rates must continue to be explored.

Traditional Medical Practice. One area of human resources that deserves consideration is that of the indigenous traditional medicine practitioner which has deep roots in the Guatemalan culture. Several thousands of traditional medical practitioners exist whose methodologies include the use of herbs, spell-casting and advice on diet and curative care, as they relate to traditional views of the nature and characteristics of disease. The Ladino population living in the rural areas, as well as the Indian population, are affected by these indigenous systems.

Modern medical care, with its armamentarium of powerful drugs, sometimes conflicts with the traditional beliefs. If modern medicine in Guatemala is to be most effective and the credibility of other actions in the health sector, such as environmental sanitation programs, is to be increased, the presence of the powerful,

ingrained and active indigeous health system must be recognized, the causes of conflict between it and modern medicine explored, and methodologies proposed by which the two systems can be integrated.

Data Collection. The human resources data base is inadequate for health manpower planning. Data on the kinds and numbers of professional personnel (e.g., doctors, dentists, and graduate nurses) can be accumulated through membership lists of professional organizations and legally required registration but similar data do not exist for auxiliary workers, particularly in the private sector. Information is lacking on the numbers of auxiliaries trained, on attrition rates, and on the location of their employment.

A health auxiliary registry, such as that which exists for professional health workers, would provide the data base necessary for: (1) development of auxiliary worker training programs based on need and employment opportunities, and (2) statistical and economic analyses, manpower projections, planning and task-analyses. Mailing lists developed from this registry could be used for distribution of information regarding new legislation, training courses, employment opportunities, and conditions of employment.

Training Programs. The planning for, training and use of health manpower should ensure that identified and anticipated needs will be met, and that health workers are developed with the skills required within the health services system.

In the past, training programs have been designed in a largely empirical fashion, in which ideas and concepts were freely transferred from foreign health care systems with little concern for the economic or practical appropriateness of these models for Guatemala.

A disproportionate number of health manpower personnel are highly trained professionals, dispensing largely curative medical services, compared with the numbers of intermediate and lower-level auxiliaries who provide mostly basic primary care and preventive services. National priorities, recognized needs, and felt needs as expressed by the population, make it clear that inconsistencies exist between the type of personnel which the training programs develop and the type of services required by the health delivery system.

Training Costs. Table 4.4-C and Figure 4.4-1 estimate training and salary costs for various levels of auxiliary health personnel. The figures do not take into account the costs of maintaining auxiliary personnel, including supplies, medicines, rent or depreciation on buildings, gasoline or animal-transport food, or pro-rated supervisory costs. These and other recurrent costs are estimated at $6,000 per year per functional health post, including $3,100 in staff salaries and $2,000 in medical supplies.

Table 4.4-D depicts the numbers of auxiliary health personnel currently available, those needed by 1980 according to the GOG health manpower plan, the deficit between those needs and those presently available and the estimated costs of training. The cost of training the needed health auxiliary personnel will be approximately $7.5 million. However, this does not take into account the attrition which will occur within the training program and during subsequent employment. When these considerations are included, total training costs rise between 15-25%. Thus, realistically, the training costs for health workers needed by 1980 will approach $9 million.

Auxiliary Health Workers. Until the early 1960's, classical model in Guatemala saw health care delivery and its centrifugal extension as functions largely of the medical and nursing professions. The solution was believed to lie in a) the recruitment and training of more doctors and graduate nurses, b) inclusion in the curricula of experiences in rural areas where the practice of community medicine could be demonstrated and experienced, and c) the indoctrination of students with the idea that "community practice" had its unique merits, satisfactions, and rewards. However when these latter precepts were propounded by their professors, medical students were singularly unconvinced, recognizing that the professors themselves were not living and working in the rural areas.

In the 1960's a large number of persons were recruited and appointed to work as auxiliary nurses at health posts located throughout rural Guatemala. Most of these auxiliaries had unacceptably low levels of education and training relevant to their new health post responsibilities and many had no training at all. Now, in an effort to upgrade the knowledge and skills of these auxiliary nurses, the MOH plans to offer self-instructional courses. However, to expect such an approach to produce the massive improvements needed may be infeasible.

The upgrading of auxiliary nurses is made difficult by their inadequate educational background, a lack of interest on the part of some and job-tenure based on several years of service. Replacing them is difficult, due to the political inexpediency of massive compulsory retirements and the unavailability of sufficient numbers of acceptably trained replacements.

TABLE 4.4-C

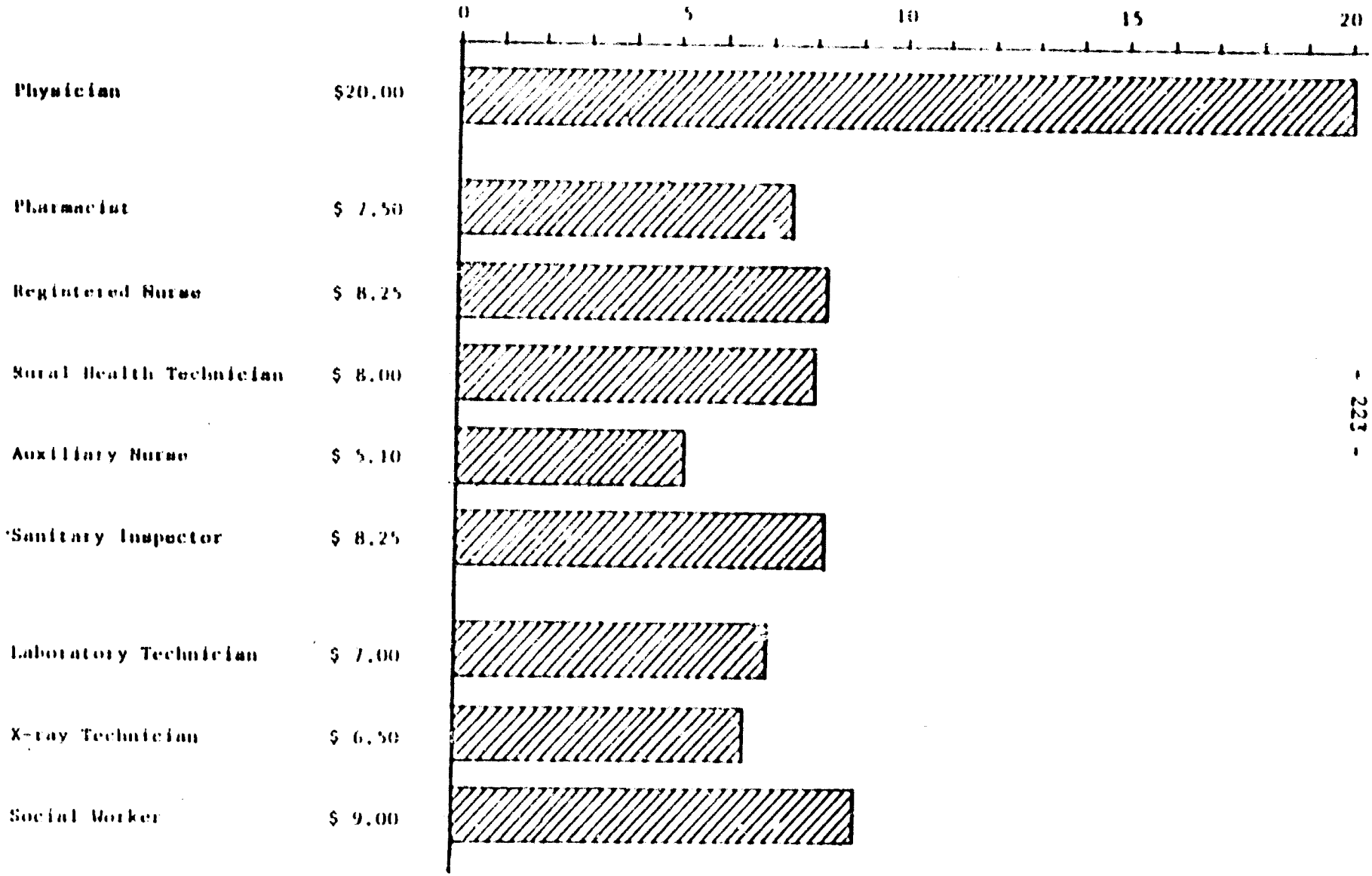
**COST OF TRAINING VARIOUS TYPES OF PROFESSIONAL AND AUXILIARY HEALTH WORKERS IN GUATEMALA**

| Category | Duration of Training | Cost Per Month | Total Cost |
|---|---|---|---|
| Physician | 7 years | $228 | $19,150 |
| Dentist | 6 years | 319 | 23,000 |
| Pharmacist | 6 years | 62 | 4,460 |
| Physiotherapist | 4 years | 163 | 7,800 |
| Registered Nurse | 3 years | 170 | 4,320 |
| Rural Health Technician | 20 months | 96 | 1,920 |
| Auxiliary Nurse | 14 months | 57 | 800 |
| Laboratory Auxiliary | 11 months | 103 | 1,130 |
| Sanitary Inspector | 6 months | 131 | 790 |
| Health Promoter | 1 month | 65 | 65 |
| Village Midwife | 0.5 months | 60 | 30 |

Source: Long, E. Croft and Viau, Alberto: "Health Care Extension using Medical Auxiliaries in Guatemala". Lancet 1, 127, 1974.

FIGURE 4.4.-1

COST PER DAY OF STAFF DELIVERING HEALTH CARE SERVICES IN GUATEMALA




Source: Long, E. Croft, and Viau, Alberto. "Health Care Extension Using Medical Auxiliaries in Guatemala." Lancet 1, 127, 1974.

TABLE 4.4-D

NUMBERS AND TRAINING COSTS OF
AUXILIARY HEALTH WORKERS NEEDED BY 1980

| CATEGORY | NUMBER AVAILABLE | NUMBER NEEDED | DEFICIT | COST OF TRAINING |
|---|---|---|---|---|
| Graduate Nurses | 753 | 1,606 | 853 | $3,684,960 |
| Auxiliary Nurses | 3,754 | 5,527 | 1,773 | 1,418,120 |
| Rural Health Technicians | 220 | 881 | 661 | 1,269,120 |
| Health Promoters | 2,000 | 8,844 | 6,844 | 444,860 |
| Retrained Village Midwives | 1,726 | 8,000 1/ | 6,274 | 188,220 |
| Sanitary Inspectors | 168 | 750 | 582 | 459,780 |
| TOTALS | 8,621 | 25,608 | 16,987 | 7,465,340 |

1/ It is estimated that there are 16,000 village midwives (1977). Ideally, all should be trained; realistically, 50%, or 8,000, might be capable of receiving training.

TABLE 4.4-E

LOCATION OF TSR GRADUATES
BY DEPARTMENT

| Departments | TSR Graduates |
|---|---|
| Totonicapán | 8 |
| El Quiché | 21 |
| El Petén | 3 |
| El Progreso | 13 |
| Zacapa | 15 |
| Alta Verapaz | 16 |
| Baja Verapaz | 13 |
| San Marcos | 13 |
| Chiquimula | 11 |
| Huehuetenango | 8 |
| Quetzaltenango | 24 |
| Chimaltenango | 17 |
| Sacatepéquez | 10 |
| Sololá | 8 |
| Jutiapa | 7 |
| Suchitepéquez | 4 |
| Jalapa | 4 |
| Izabal | 4 |
| Guatemala | 1 |
| INDAPS, Quiriguá | 5 |
| Academy of Medical, Physical and Natural Sciences | 3 |
| Division of Human Resources, MOH | 1 |
| TOTAL | 209 |

An alternative strategy, subsequently adopted by the Ministry of Health in the face of vociferous opposition by medical and nursing professional organizations and training institutions, contemplated the formation of a new, intermediate-level health worker trained to address the root causes of the majority of illnesses afflicting the largely juvenile rural population. Studies were designed, implemented and completed to determine the need for, acceptance of, and the role to be played by the new health worker, as well as the support systems required for him to function effectively.

This new health worker, the Rural Health Technician (TSR) is a man or woman between 18 and 46 years of age employed by the Government of Guatemala who, after training, functions as an intermediate-level medical auxiliary in the upgrading and extension of health care in the rural areas. His duties include community organization for self-help projects, assessment of wants and needs, community health education including nutrition and family planning, improvement in the sanitary environment including promotion of hygienic practices related to the use and storage of potable water and the sanitary disposal of human wastes, development of congenial working relationships with the village midwife, supervision, and sometimes training, of village health promoters, and simplified curative medicine and first aid.

Currently, TSRs are selected for service in the predominantly Indian areas based on their proximity to the Indian culture and their potential to identify with it and influence Indian leadership. Of the TSRs recruited from and working in the predominantly Indian departments of the highlands, approximately 30% speak an Indian language, have Indian names and bear Indian features. None live an Indian life-style (although all live simply by Western criteria) and only a few of the women TSR graduates wear Indian clothing. All are necessarily fluent in Spanish.

Table 4.4-E illustrates the distribution of TSR graduates by department. In accordance with the MOH priorities, the predominantly Indian departments of the highlands receive priority, although personnel are now becoming available to begin coverage of the non-Indian department of El Petén and the eastern part of the country.

After approximately two-and-a-half-years of field experiences, impressions of TSRs vary from positive (enthusiastic acceptance, effective deployment good liaison with other health workers, major impact on community health) to negative (poor acceptance, ineffective or incorrect use of the TSR, poor

communication with frequent quarrels and misunderstandings and insignificant impact on community health). In fact, both extremes probably exist and all combinations between them.

An indicator of the general success and recognized value of the TSR came about following the disasterous earthquake of February 1976, when more than 25,000 persons lost their lives and over 110,000 were injured. The Ministry of Health immediately moved all TSRs to the affected areas where they worked for four to six months. No other group of health workers had the capacity for organizing the devastated communities, identifying leaders, forming community action committees, performing first aid and establishing liaison with other assistance efforts, and with the central government, through which relief efforts could be appropriately directed.

The two most basic problems which persist in the TSR program are:

1. Adequate supervision is lacking, especially when physicians are the appointed supervisors of TSRs because (a) physicians are not trained in supervisory techniques and tend to equate "supervision" as an informal chat, and (b) they are unwilling to spend several days traveling in rural areas to visit a few TSRs. This problem is gradually being overcome by the appointment of senior TSRs as supervisors.

2. Support facilities, such as supplies, medicines, vaccines, gasoline, oil, are provided irregularly and in insufficient amounts. Although the curative services performed by the TSR are restricted to 20% of his time, basic medical supplies and medicines are needed if he is to be effective.

An important determinant of the success of the TSR as a community developer for better health appears to be the attitude, understanding and imagination of the Health Area Medical Supervisor. When suspicion, hostility and misunderstanding exist on the part of the supervisor, the dedication of the TSR cannot ensure a successful program. However, when the reverse is true, the degree to which TSRs can penetrate the rural areas and catalyze community self-help programs for health is virtually unlimited.

Supervision. The National Health Plan, 1975-1979, emphasizes the need to train auxiliary health workers if greater health services coverage is to be achieved at a realistic cost. Although the need may not be explicitly recognized in a policy of this

kind, the satisfactory, safe and professionally acceptable deployment of auxiliary health workers requires the development and implementation of adequate systems for supervision and performance evaluation. Without this, the danger exists that the auxiliary worker will attempt to undertake activities and make decisions beyond his competence, and as a consequence become a threat, rather than a help, to the welfare of the individual or community he is serving.

Effective supervision implies (1) a logical sequence in which actions are evaluated in terms of agreed-upon objectives, competence, timing, judgement and impact, and (2) guidance, which requires that the supervisor act to bring about correction and realignment when necessary. Experience has indicated that the most enthusiastic and sensitive supervisors for health auxiliaries are other health auxiliaries.

Evaluation. Evaluation of the MOH rural health services is currently in progress by the Guatemalan Academy of Medical, Physical and Natural Sciences, in cooperation with the Ministry of Health. The orderly expansion of this project, and the institutionalization within the MOH of the project's data-collection, information-processing, and interpretative activities will provide a rational basis for projection and planning, in addition to a measurement of goal achievement and deviation.

Role Studies. The changing character of health care delivery, with increased emphasis on the training and use of low-cost auxiliary personnel to carry health services to formerly unreached rural areas, has caused changes in the roles and functions of many health workers. New methods of control and treatment of infectious diseases, including tuberculosis, as well as an increased interest in preventive rather than curative services, have contributed to these changes. A growing health industry in the private sector, an increased awareness in the industrial sector of the value of a healthy worker and extended outreach of social security services also contribute to the change. New patterns of health worker training, with emphasis on practical field experiences, new modalities for assessing worker and program effectiveness and moves toward decentralized health administration in the public sector have aided the change which affects every functional health unit. These changes imply altered roles for existing health workers, careers for new types of health workers, and increased or decreased responsibilities for some levels and types of workers.

Conclusion. In accordance with the new directions of health care delivery in Guatemala, especially to the rural areas, a number of changes are needed. Health personnel, their recruitment, training, jobs, and working conditions must be realigned. Opportunities for further education and career advancement must be created; employee benefits, working hours, vacations, and sick leave must be re-evaluated; and work norms and job descriptions must be readjusted. And finally, salaries in the public sector must be made competitive with those in the private sector if the most talented and motivated workers are to be obtained and retained.

Recommendations

Based on the Problem Analysis and the subsequent discussion, the following recommendations are made with respect to human resources in the health sector:

Recommendation 1: THE PUBLIC SECTOR HEALTH MANPOWER PLAN SHOULD BE REVISED IN TERMS OF THE FUNDS AVAILABLE AND PROJECTED. THIS SHOULD INCLUDE A REVIEW OF THE DISTRIBUTION OF HUMAN RESOURCES IN THE HEALTH SECTOR, CARRIED OUT AS PART OF A MORE COMPREHENSIVE STUDY, WITH THE OBJECTIVE OF DEVELOPING POLICIES THAT PERMIT A MORE EQUITABLE DISTRIBUTION OF NUMBERS AND KINDS OF HEALTH WORKERS, BOTH PROFESSIONAL AND AUXILIARY.

Recommendation 2: THE MOH SHOULD ESTABLISH A REGISTRY OF ALL AUXILIARY HEALTH WORKERS WHO ARE GRADUATES OF RECOGNIZED TRAINING PROGRAMS AND WHO CURRENTLY PROVIDE SERVICES IN BOTH THE PUBLIC AND PRIVATE SECTORS.

Recommendation 3: PERIODIC RE-REGISTRATION SHOULD BE MANDATORY FOR THOSE CATEGORIES OF WORKERS WHO ARE EXPENSIVE TO PRODUCE AND FOR WHICH IT IS IMPORTANT TO KNOW THE SIZE OF THE POOL OF WORKERS, SUCH AS DOCTORS, GRADUATE NURSES, AUXILIARY NURSES, DENTISTS AND VETERINARIANS.

Recommendation 4: TRAINING PROGRAMS IN THE PUBLIC AND PRIVATE SECTORS SHOULD BE ANALYZED FROM A TASK-ORIENTED VIEWPOINT TO ASCERTAIN THEIR APPROPRIATENESS TO ESTABLISHED NEEDS IN THE HEALTH SYSTEM AND THEIR RESPONSIVENESS TO CHANGES IN THESE NEEDS.

Recommendation 5: A PLAN AND A TIMETABLE SHOULD BE DEVELOPED TO ADDRESS AND RESOLVE THE PROBLEMS CREATED BY THE MASSIVE EMPLOYMENT IN THE PUBLIC SECTOR OF AUXILIARY HEALTH WORKERS WHO ARE EITHER UNTRAINED OR INADEQUATELY TRAINED FOR EFFECTIVE PERFORMANCE OF DUTIES.

Recommendation 6: STUDIES AND PILOT PROGRAMS SHOULD BE CARRIED OUT IN ORDER TO IDENTIFY HOW BEST TO INCORPORATE THE APPROPRIATE ELEMENTS OF THE TRADITIONAL (INDIGENOUS) MEDICAL SYSTEM INTO THE CARE PROVIDED BY THE PUBLIC SECTOR HEALTH SYSTEM, ESPECIALLY IN THE RURAL AREAS.

The study of existing Indian and Ladino traditional beliefs should include:

1. the points of coincidence and conflict with modern medicine;

2. a determination of those aspects that could be incorporated into auxiliary training;

3. appropriate methodologies of teaching the traditional aspects to be incorporated, and

4. methodologies for evaluating the effectiveness of the teaching techniques and the utilization of such information in health care delivery.

Recommendation 7: A REVIEW SHOULD BE CONDUCTED OF EMPLOYMENT CONDITIONS OF ALL HEALTH WORKERS IN THE PUBLIC SECTOR, AND SHOULD INCLUDE RE-EVALUATION OF THE APPROPRIATENESS OF EXISTING JOB DESCRIPTIONS AND THE EXTENT TO WHICH THEY REALISTICALLY REFLECT THE TASKS PERFORMED. PAY SCALES, CLASSIFICATIONS, BENEFITS, WORKING HOURS, VACATIONS, SICK LEAVE, AS WELL AS OPPORTUNITIES FOR CAREER ADVANCEMENT AND ADDITIONAL TRAINING, SHOULD BE REVISED IN TERMS OF THE EXISTING ECONOMIC SITUATION AND THE DEMANDS OF THE NEW PATTERNS OF HEALTH CARE DELIVERY.

A SEPARATE BUT RELATED STUDY SHOULD BE MADE FOR IMPROVING THE SYSTEM OF HEALTH MANPOWER SUPERVISION AND EVALUATION AT ALL LEVELS IN THE PUBLIC HEALTH SECTOR AND SHOULD INCLUDE PREDICTION OF PERSONNEL NEEDED, COSTS AND METHODOLOGIES FOR IMPLEMENTATION AND EVALUATION.

TABLE 4.4.-F

RECOMMENDED HUMAN RESOURCES STUDIES

| RECOMMENDED STUDIES | RESPONSIBLE AGENCY | WILL REQUIRE TECHNICAL ASSISTANCE FROM: AGENCY | MAN MONTHS | APPROXIMATE DURATION OF STUDIES BEGIN | END |
|---|---|---|---|---|---|
| 1. Comprehensive Manpower Plan | Consejo Nacional de Planificación Económica<br>Health Unit | MOH<br>IGSS<br>USC<br>Academy of Sciences<br>Other | 2<br>1<br>1<br>2 | May 1 | August 31 |
| 2. Registry of Auxiliaries | Ministry of Health<br>Human Resources Division | Other | 3 | Jan 1 | March 31 |
| 3. Analysis of Training Programs | Ministry of Health<br>Human Resources Division | INTECAP<br>Academy of Sciences<br>USC | 1<br>2<br>1 | April 1 | May 31 |
| 4. Supervision and Evaluation | Ministry of Health<br>Human Resources Division | Academy of Sciences | 2 | June 1 | July 31 |
| 5. Retraining of Auxiliaries | Ministry of Health<br>Human Resources Division | INTECAP | 2 | April 1 | May 31 |
| 6. Incorporation of Traditional Medicine | Ministry of Health<br>INDAPS - Instituto de Adiestramiento de Personal de Salud | Universidad Del Valle<br>Other<br>INCAP | 6<br>2<br>1 | Jan 1 | June 30 |
| 7. Employment Conditions | Consejo Nacional de Planificación Económica<br>Health Unit | National Civil Service<br>Academy of Sciences<br>IGSS<br>MOH | 2<br>3<br>1<br>2 | April 1 | June 30 |

Key: MOH - Ministry of Health
IGSS - Instituto Guatemalteco de Seguridad Social (Social Security Institute)
USC - University of San Carlos
INTECAP - Instituto Técnico de Capacitación y Productividad (Technical Training Institute)
INDAPS - Instituto de Adiestramiento de Personal de Salud (Health Workers Training Institute)
INCAP - Institute of Nutrition of Central America and Panama

## SECTION 4.5 NUTRITION - PHASE I

(Summarized from INCAP Report, "Analysis of the Nutrition Problem in the Guatemalan Population")

### 4.5.1. Introduction

#### A. Summary Statement

Phase I of the Nutrition Assessment confirms the existence of serious nutritional problems in Guatemala which are evidenced by substantial growth retardation in large numbers of children, high prevalence of infants with low birth weights, a high rate of communicable diseases in children under five, and infant mortality rates and mortality rates in children 1 to 4 years which are among the highest in Latin America.

The average caloric intake is insufficient to meet the physiological needs of the population. It is estimated that the caloric deficit of the poorest half of the population is on the order of 40% of the minimum daily requirement. The real consumption of corn, which has traditionally constituted the main source of energy in the diet of rural Guatemalans, has decreased in the last few years at an annual rate of more than 6%.

Poor sanitary conditions are greatly responsible for the very high rate of diarrheal diseases in children under five. These diseases, because of their effect of limiting utilization of nutrients, are an important cause of malnutrition. In addition, the lack of sanitation results in a high prevalence of intestinal parasites. Onchocercosis and trichocephaliasis, combined with a low iron intake, cause anemia. Nutritional anemia, particularly due to iron deficiency, continues to be a major health problem and significantly affects the productivity of agricultural laborers.

Endemic goiter, the prevalence of which declined in the 1960-70 decade due to the GOG's salt iodization program, seems to have disappeared; at least in its endemic form. There is firm evidence that fortification of sugar is substantially reducing vitamin A deficiency in Guatemala.

The size and type of nutritional programs operating in the health sector today do not appear to have had any great impact on reducing the rate of malnutrition (see B. below). This fact suggests the need for new and innovative multisectoral approaches which address the complex problem of malnutrition.

Despite some data gaps, it is apparent that the situation is deteriorating. Rapid economic growth which has characterized Guatemala during the past 10 years, has not had any significant effect on the nutritional status of the population. If the present situation continues, and there is no indication that it is changing, and in the face of rapid population growth, we can assume that the nutritional status of the Guatemalan population, already one of the least satisfactory in the Americas, will continue to deteriorate at a slow but steady pace.

## B. Current Nutrition Programs in the Health Sector

Nutrition programs currently being implemented by the health sector include recuperation centers (Servicios de Educación y Recuperación Nutricional - SERN), PL-480 feeding in health posts and centers by the voluntary agencies, a MOH price subsidy for INCAPARINA, fortification of sugar with vitamin A and iodization of salt. In addition TSRs, auxiliary nurses and other health personnel receive some training in nutrition education. The MOH's family planning program, implemented by APROFAM, is the subject of a separate chapter of the Assessment. An evaluation of the nutritional impact of the PL-480 program in Guatemala will be conducted as soon as the contract for the development of a scope of work with Nathan Associates is negotiated by Washington. A recent evaluation of INCAPARINA1/ found that its nutritional impact has been limited by prices that are high relative to the purchasing power of the low income groups who are malnourished.

Although the Ministry examined its SERN center program as part of Phase I of the nutritional assessment, it was little more than a description of how SERNs operate. The Mission found, during a literature review of nutrition and health activities in Guatemala, an evaluation of the effectiveness of SERN programs in Guatemala and Haiti conducted in 1971.2/ Basic findings are described below to supplement the INCAP Nutrition Report.

---

1/ Dr. Robert Wise, paper submitted in partial fulfillment of the requirements for "Nutrition Planning in Low-Income Countries" course at Harvard School of Public Health, Boston, Mass., January 21, 1977.

2/ Micheline Marie Nicole Beaudry-Dariseine, "A Comparative Evaluation of the Effectiveness of Nutrition Rehabilitation Centers in Haiti and Guatemala", a Thesis presented to the Faculty of the Graduate School of Cornell University for PhD, December, 1971.

The SERN evaluation found a substantial decrease in the number of cases of third degree malnutrition at discharge from the SERN, illustrating that the centers have had some impact on the weight for age relationship of children attending. However, few children had reached normal nutritional status by the time of their discharge. In Guatemala 75% of the children decreased their weight deficit to some degree or improved their weight for age ratio.

When measuring the effectiveness of SERNs by comparing nutritional status of children in the experimental group with that of children in the control group one year after discharge, and measuring malnutrition among younger siblings of children in the experimental group, it was found that in Guatemala the centers appeared to have had little impact on nutritional status. Either the children gained as much as they could while attending the SERNs, or the mothers did not change their behavior adequately to insure continued recuperation of children. In addition, the mean weight for age ratio of the next younger siblings of the children under study was not significantly different between experimental and control groups.

In summary the evaluation suggest that the effectiveness of SERN centers in reducing malnutrition was not significant. There might, however, have been some long-term educational benefits which were not detected during the first year after discharge. There is clearly a need for further study and evaluation before SERNs are widely recommended as a way to improve nutritional status of pre-school aged children.

Other Ministry of Health nutrition programs are discussed in the following summary of the INCAP report on nutrition. The full text of the report appears as Annex 5.1.3. to the health sector assessment.

## 4.5.2. Summary of INCAP Report

### 4.5.2.1. Evidence of Malnutrition

In developing countries, malnutrition is a serious problem which is evidenced by:

A. Severely retarded physical growth, especially in small children;

B. High proportion of children who have low birth weights (weight of 2500 grams or less; or 5½ lbs. or less);

C. High susceptibility to infectious diseases.

D. Very high rates of mortality, especially in infants and in children 1-4 years old.

A. Physical Growth Retardation:

Weight for age and height for age are anthropometric indicators which describe the effects of chronic malnutrition and identify children who are currently suffering, as well as those who have suffered at some point in their lives, malnutrition. On the other hand, weight for height describes children who at present suffer malnutrition and does not take into account those cases in which children have previously suffered retardation of weight or height but currently, despite their stunted size, have an adequate weight for their height. In other words, it is an index that, despite identifying children who are currently malnourished, really underestimates the harm that malnutrition has previously caused many children.

The results of different anthropometric studies presented in Table 1 show that from 29% to 38% of Guatemalan children between 6 and 59 months old suffer from second or third degree malnutrition according to the Gomez scale. In other words, approximately one out of every three Guatemalan children has a deficit in body mass of at least 25% of the weight considered normal for his age. This is one of the highest prevalences of malnutrition observed in the world. The same studies show that nearly 48% of the children suffer from first degree malnutrition, which means that they have a weight deficiency between 10 and 25% for their age.

The same table also shows that there is more malnutrition in the rural areas than in urban areas which have better access to health services. No improvement has been observed in the nutritional status of Guatemala when comparing the anthropometric data of 1965 to 1975. On the contrary, the data seem to suggest that the rural areas have apparently become worse off in terms of their nutritional status.

Table 2 presents the results of surveys of height for age. Approximately 50% of children under 5 years of age have a 10% or higher deficit of height for age. Similarly, weight for age indicators demonstrate that the rural populations appear to be more affected than urban populations.

TABLE 1

GOMEZ CLASSIFICATION IN CHILDREN FROM 6 TO 59 MONTHS - GUATEMALA 1965-75

| Years | Description of the Population | Cases | Nutritional condition | | | |
|---|---|---|---|---|---|---|
| | | | Normal | Degree I | Degree II | Degree III |
| | | | % | % | % | % |
| 1965 | Rural * | 776 | 18.7 | 48.6 | 27.2 | 5.5 |
| 1965 | Urban-Rural * | 859 | 22.0 | 47.7 | 25.2 | 5.1 |
| 1975 | Rural * | 663 | 15.0 | 46.9 | 33.0 | 5.1 |
| 1975 | Health services** | 1026 | 23.0 | 48.2 | 26.1 | 2.7 |

Source: * INCAP
** DINIF (Maternal/Child Health Division, Ministry of Health)

Table 2

HEIGHT FOR CHILDREN FROM 6 TO 59 MONTHS - GUATEMALA
1965 - 1975

| Description of the population | Cases | % of Adequacy of height for age | | |
|---|---|---|---|---|
| | | 90 & up | 85-89 | less than 85 |
| rural * | 756 | 48.4 | 32.0 | 19.6 |
| urban * | 839 | 51.9 | 30.3 | 17.8 |
| rural * | 666 | 50.9 | 30.8 | 18.3 |
| health services ** | 814 | 62.4 | 25.3 | 12.3 |

SOURCE: * INCAP
** DIHIF

The data on weight for height contained in Table 3 indicate that in all these studies, at least 20% of the children have a deficit of 10% or more of the normal weight for their actual height. In addition, a considerable proportion of these children, 3.1% to 4.5%, reach a weight deficit for height of 20% or more.

In conclusion, based on weight for age and height for age indicators, a high percentage of Guatemalan children suffer or have suffered retarded physical growth. A lower percentage, between 20% and 33%, as shown in the results of weight for height, currently suffer malnutrition. The data show a tendency toward deteriorating nutritional status for the country during the past 10 years. The impact of this situation is serious when population growth is taken into account. The absolute number of malnourished children in 1975 has actually increased. Available data does not permit the identification of regions or population groups which are most affected, although data suggest that dispersed rural populations could be the most affected.

B. Low Birth Weights

Low birth weight is highly related to the nutritional status, as well as morbidity and height, of the mother. The Maternal, Child and Family Health Division of the Ministry of Public Health and Social Welfare (DIMIF) made a study of newborn children in the maternity wards of the departments during 1975. From a total of 1,235 cases, 15.9% of the children were born with a weight of 2500 grams or less, reflecting not only the deficient nutritional status of women during pregnancy, but also indicating the high death risk of these children during the first year of life. The percentage of underweight children at birth is higher in mothers who deliver at home. Approximately half of the pregnant women attended in maternity wards of the Ministry of Health and Social Assistance have a height under 148 cms., which is considered the lowest limit; mothers under this height have a larger number of children who weigh less than 2500 grams at birth.

C. Morbidity

Various studies[1/] in Guatemala and other countries have demonstrated the close relationship which exists between

---

1/ See references 15, 16, 17, 18, 19 and 20 in Bibliography of Section 5.13, p. 43-47.

TABLE 3

WEIGHT FOR HEIGHT IN CHILDREN FROM 6 TO 59 MONTHS - GUATEMALA
1965-1975

| Year | Description of the population | Cases | % of Adequacy of weight for height | | |
|---|---|---|---|---|---|
| | | | 90 & up | 80-89 | less than 80 |
| 1965 | rural * | 750 | 78.3 | 18.4 | 3.3 |
| 1965 | urban-rural * | 833 | 79.4 | 17.5 | 3.1 |
| 1975 | rural * | 666 | 66.8 | 28.7 | 4.5 |
| 1975 | health services ** | 804 | 73.0 | 23.0 | 4.0 |

SOURCE: * INCAP
** DIMIF

malnutrition and infectious diseases, especially diarrhea, respiratory infections, and measles. Malnutrition increases the susceptibility of children to infectious diseases which become more frequent and more severe. This phenomenon is reflected in high morbidity and mortality rates.

### Specific Morbidity Caused by Malnutrition

For 30 years the medical profession has recognized the existence of severe malnutrition in Guatemala. It is evident that protein-caloric malnutrition (PCM) is one of the main health problems, but paradoxically, there are no preliminary data on specific morbidity due to PCM in Guatemala. Kwashiorkor was recognized more than three decades ago and was carefully studied by Guatemalan pediatricians and INCAP. There is no doubt that its severe forms are less frequent today, but some cases are still seen in hospitals.

The only information available at the national level is the prevalence of third degree malnutrition. In 1975 in twelve communities studied by INCAP, 5.1% of 663 children suffered from third degree malnutrition. In Santa María Cauqué the prevalence of third degree malnutrition in a group of children between 2 and 2½ years was 16%. While not all children have the clinical symptoms of acute PCM, among children with second degree malnutrition some suffer from kwashiorkor and marasmus.

Data on out-patient clinics and hospital admittances are not very useful. The heading "vitamin and other nutritional deficiencies" represents from 3.9 to 19.0% (average of 6.7%) of the causes for visits of children one year old or under in 1975 according to the Ministry of Public Health and Social Assistance. In children 1-4 years of age the corresponding figures are 2.4 to 9.8% (average of 4.9%). In both groups, malnutrition constitutes the fifth cause for visits, but if we take into consideration the interrelationship between malnutrition and infectious diseases responsible for the first four causes, it is evident that there is considerable underestimation.

### Morbidity Associated with Malnutrition and Reflected in the Demand for Ambulatory and Hospital Care

With little variation the first causes for consultation, as well as hospitalization, are: enteritis and other diarrheal diseases, acute respiratory diseases, other infectious and parasitic diseases, skin and subcutaneous diseases, and vitamin

and other nutritional deficiencies. For children under one year of age and children 1-4 years diarrhea is the main reason for medical attention. This places Guatemala among the countries whose number one health problem is the malnutrition-gastroenteritis association in children, taking into account that malnutrition is at the same time a causative factor for the high prevalence of diarrhea as well as, in a great measure, a consequence of diarrhea. The same considerations can be applied in a similar way to acute respiratory diseases and other infectious diseases, as well as to intestinal infections caused by Shighella and other parasites which are frequently reported by health centers and health posts.

### Malnutrition and Intestinal Malabsorption

Recent studies made by INCAP have shown the interrelationship among environment, nutritional status, and gastrointestinal disease which is evident in the high incidence of diarrheal episodes. The great prevalence of gastrointestinal diseases is observed particularly in the low income rural and peri-urban areas where the population lives in extremely poor conditions, in terms of sanitation, food and water supplies, housing, and medical care services. These studies show that there is a significant percentage of adults suffering from subclinical malabsorption. There is evidence that 50-59% of "healthy" adults in the rural areas lose between 150 to 300 calories per day above the fecal caloric elimination of healthy individuals. The economical and biological impact produced by this additional caloric loss is very significant since their diet is already marginal or inadequate.

Diarrheal and gastroenteritis episodes also constitute the number one cause for consultation in children under five and the first cause of death. In most cases the diarrheal problem is associated with various degrees of malabsorption.

### Effects of Social Factors on Morbidity Due to Malnutrition

There is a possible relationship between migration and malnutrition. A study made in three Guatemalan villages showed that there is a higher percentage of children suffering from severe or moderate malnutrition when the parents migrate. This relationship is found in families with above average incomes, as well as in families with lower incomes.

In the eastern part of Guatemala, it was also observed that there was a significant relationship between the availability of land and the prevalence of malnutrition in the family. Malnutrition was lower in families that owned or had access to more than 2 manzanas of land. Access to land was more important than ownership itself.

### Morbidity in Pregnant Women: Effects on Birth Weight

Maternal morbidity during pregnancy is closely associated with the child's weight at birth. Surveys of mothers who had low morbidity rates showed that only 10.5% of the children were born weighing less than 2500 grams. On the other hand, for another group of mothers whose morbidity rate was high, the percentage was 33.3%. INCAP studies in an Indian community in the Guatemalan Altiplano show that the incidence of infectious diseases is high during pregnancy. Data compiled for such studies during a period of eight years revealed that infectious respiratory diseases and diarrhea were present in 71.7 and 20.2%, respectively, during pregnancy. Even more serious illnesses such as bronchial pneumonia and dysentery were regularly present. The infections most frequently found were respiratory, diarrheal and urinary. The same study showed that maternal malnutrition may be one of the factors responsible for retarded fetal growth. It appears that low ingestion of nutrients and high incidence of infections during pregnancy are causes of growth retardation.

### Morbidity Due to Deficiency of Specific Nutrients: Anemia, Vitamin A and Goiter

An INCAP study showed the prevalence of anemia for Central America and Panama is very high. On the Guatemalan south coast, women of reproductive age were studied along with adult men. Findings showed a prevalence of anemia of 20% and of iron deficiency measured by transferrous saturation of 53%. When these individuals were treated with ferrous sulphate, 85% of them reached normal values according to the hematological standards for Central America and Panama so that the prevalence of anemia dropped to 6% and iron deficiency to 21%. On the other hand, around 12% of the individuals needed iron and folic acid to reach normal hematologic levels.

Studies made of nursing mothers showed that anemia is higher in this group than in women of reproductive age who

are not breast-feeding. Anemia during pregnancy is also a health problem in rural as well as urban areas regardless of altitude. In analyzing the iron intake of 197 families in Guatemala in 1965, 34% of the families did not meet the minimum requirement. Their intake was less than 10 miligrams per day. In addition, most of the iron comes from cereals and vegetables because very little meat is consumed. Iron absorption is, therefore, low. Iron deficiency in Guatemala is a serious nutritional problem and is the major cause of 90% of all anemias observed in the rural and urban areas.

Findings from the INCAP survey made in 1965 show that vitamin A deficiency is a health problem in Guatemala and that an adequate intake of vitamin A is essential for normal growth and development. The government approved and implemented a program for sugar fortification with vitamin A in November, 1975. Prior to 1975 an evaluation was conducted. The results of the initial survey showed that vitamin A deficiency was still a problem. 55.2% of pre-school age children had levels of vitamin A below the desirable limits. Subsequent surveys made in April and October 1976 after fortification show a marked improvement in the situation.

Studies made in 1955 by INCAP and the Ministry of Health showed that the prevalence of endemic goiter in the country was 38%. In 1959 a salt iodization program was initiated. As a consequence a marked decrease was observed. Nevertheless, since 1969 the percentage of iodized salt produced in the country has diminished. In 1965 90.3% of salt production was iodized. By 1970 the percentage was 69%. In 1976 it was 15%. Salt which enters the country illegally, and which generally is not iodized, is not included in these figures. If the present situation continues, it could lead to the reappearance of goiter.

## D. Mortality

### Infant Mortality

Despite the high degree of under-registration, the infant mortality rate in Guatemala is high. The preliminary data for 1975 showed a rate of 81.1/1000 live births (Table 4). The rate is closer to 100/1000 if adjustments for under-registration are made. A decline has been observed in the infant mortality rate since 1960, but the decrease has stabilized during the last 5 years. Neonatal mortality appears high: 25.6 in 1975 with a general trend

Table 4

INFANT MORTALITY RATES AT BIRTH AND AFTER BIRTH (BY 1000 BORN ALIVE) AND MORTALITY OF 1-4 YEARS 1960 - 1975

| ars | Infant mortality | Neonatal Mortality | Post Neonatal Mortality | 1-4 years 2* |
|---|---|---|---|---|
| 960 | 91.8 | 36.9 | 54.9 | --- |
| 961 | 84.8 | 35.6 | 49.2 | 29.8 |
| 962 | 91.3 | 36.3 | 55.0 | 31.4 |
| 963 | 92.8 | 37.2 | 55.6 | 32.2 |
| 964 | 87.8 | 34.7 | 53.1 | 27.3 |
| 965 | 92.6 | 35.2 | 57.4 | 33.5 |
| 966 | 89.0 | 34.8 | 54.2 | 31.0 |
| 967 | 86.7 | 32.2 | 54.5 | 28.3 |
| 968 | 92.0 | 34.0 | 58.0 | 31.6 |
| 969 | 91.3 | 30.8 | 60.5 | 33.9 |
| 970 | 87.1 | 30.8 | 56.3 | 27.0 |
| 971 | 81.6 | 29.2 | 52.4 | 29.2 |
| 972 | 80.0 | 27.6 | 52.4 | 22.6 |
| 973 | 79.9 | 27.3 | 52.3 | 22.3 |
| 974 1 | 74.0(75.4)** | 26.4 | 47.5 | 21.7 |
| 975 1 | 79.9(81.1)** | 25.6 | 54.3 | 28.0 |

per thousand children of 1 to 4 years
preliminary figures

E: Statistics Bureau. Statistical year book 1975, Guatemala

1. Planning and statistics Office. Bureau of Health Services of Guatemala, data in parenthesis of infant mortality are preliminary figures from the Statistics office.

2. Vital statistics, non published tabulations. Bureau of Statistics, Guatemala.-

towards improvement. Postneonatal mortality rate is also high: 54.3 in 1975; a rate which has remained stable during the last 5 years.

The infant mortality rate in rural areas is higher than in urban areas. Nevertheless, the difference is not great. However, the rates are difficult to compare because under-registration is higher in rural areas.

When a comparison is made between indigenous and non-indigenous populations, the mortality rate in children from 1 to 4 years of age has been relatively stable in non-indigenous populations from 1965 through 1973, while in the indigenous population it tends to improve. Again under-registration in rural areas is one possible explanation for the difference. Infant mortality, which was higher in the indigenous population in 1965, was found to be lower than that of the non-indigenous population in 1973: 70.8 and 89.3, respectively.

In summary, a slight improvement is found in neonatal mortality, while postneonatal mortality does not show any tendency to improve. Postneonatal mortality is the one most influenced by the nutritional status of children. The infant mortality rate has remained stable for the past five years.

Mortality in Children 1-4 Years of Age

The mortality rate in children 1-4 years of age in 1975 was 28.0. After 1961, there was a slight improvement, but in the last 6 years the trend has stabilized. In view of the fact that the quality of the registry is better than in the case of infant mortality, departmental comparisons can be made. The situation is more critical in Escuintla and in the Departments of Totonicapán, Sololá, El Quiché, Suchitepéquez, and Alta Verapaz. In general, with the exception of the Department of Escuintla, mortality in children 1-4 years appears higher in departments with a high percent of indigenous population.

It is difficult to reach any conclusion regarding differences in the 1-4 year mortality rate between urban and rural areas. Between 1968 and 1973, there was a general decreasing trend in both the urban and rural areas. The rate has always been higher in the rural areas, but this difference is gradually disappearing.

## Mortality in the Second Year of Life

The specific mortality rate in the second year of a child's life is considered a relatively good indicator of nutritional status in populations where protein deficiency is a problem. This rate in Guatemala is very high, concentrating practically all mortality of the 1-4 age group in the second year. In 1973-74, the mortality rate for 2 years old was 33.5/1000. The geographic distribution of this rate is very interesting: the mortality rate in the second year of life is higher in the Departments of Escuintla and Sololá, Totonicapán, Alta Verapaz and Quiché. The latter are almost totally populated by Indians. There has been a general tendency toward improvement since 1969.

## Mortality Due to Malnutrition

There are no specific mortality rates due to malnutrition for each age group and for each department. The international classification for causes of death does not allow for this data. Such classification utilizes the basic cause of death as the only criterion, without involving associated causes. But associated causes may represent in total mortality a much more important role than the basic cause. The survey of mortality in infants and children made by the Pan American Health Organization showed that malnutrition, defined as II or. III degree (Gomez) is found as an associated cause in 32% to 70% of all deaths due to different causes in children under 5, while malnutrition as a basic cause plays a proportionally smaller role.

In other words, the type of statistics on hand ignore the important role of malnutrition in mortality of children due to diarrhea, measles, whooping cough, respiratory infections and other diseases. Statistics mention malnutrition when it is the basic, immediate and visible cause of death. Therefore, the under estimation of the role of malnutrition in mortality is very substantial. In spite of the above, malnutrition is the fourth basic cause of death in Guatemala among children under one and 1-4 years.

## Mortality with Malnutrition as an Associated Cause

There is no quantitative information on the role of malnutrition as an associated cause of death in Guatemalan children. The structure of mortality by causes is characteristic of an infant population seriously affected by malnutrition.

In children under one the main causes of death are acute respiratory diseases, diarrhea, and other infectious and parasitic diseases. This order is virtually the same for all departments with some differences, but most deaths are due to infectious diseases, many of which would not be lethal if the child were not suffering from malnutrition.

In 1-4 years olds, diarrhea is the first cause of death, followed by respiratory diseases. In this age group the interaction between malnutrition and infection is demonstrated by mortality rates. Measles, which is a disease that does not cause a great number of deaths in well nourished populations, is responsible for 15.9% of deaths. In five departments (Totonicapán, Sololá, Petén, Izabal and Quezaltenango) measles is the first cause of death. In these departments the number of deaths due to measles demonstrates the existence of severe nutrition.

4.5.2.2. Availability and Consumption of Food

Based on information provided by national food balance sheets for the years 1960-70, the average calorie consumption in 1970 covered only 93% of the energy requirement and 91% of the protein requirement according to minimum daily requirements for the sampled populations. If this information is disaggregated by income level, 50% of the population would be classified as low income. In this group, the calorie consumption covered only two-thirds of the energy needs and half of the protein needs. These figures were an average which means that within the group there were individuals whose calorie and protein intake was more deficient, indicating a very serious level of malnourishment. Moreover, the quality of proteins consumed was very poor because protein derived mostly from corn is deficient in essential amino acids. The percentage of animal protein in the diets of low income people was also inadequate.

Corn and beans are traditionally the main source of calories and proteins in rural diets. The figures for per capita availability of these two basic grains in the 1960-1976 balance sheets (Table 5) show that in the last eight years the national daily per capita consumption of corn has decreased from 555 grams in 1968 to 278 grams in 1976, a reduction of 6% per year. Regarding beans, the per capita availability (Table 6) remains more or less

Table No.

PER CAPITA CORN CONSUMPTION IN GUATEMALA FROM FOOD BALANCE SHEETS

| YEAR | CONSUMPTION PER YEAR Kg | PER DAY gr |
|---|---|---|
| * 1960 | 180.6 | 494.8 |
| 1961 | 179.0 | 490.4 |
| 1962 | 197.8 | 541.9 |
| 1963 | 197.4 | 540.8 |
| 1964 | 209.3 | 573.4 |
| 1965 | 204.0 | 558.9 |
| 1966 | 177.1 | 485.2 |
| 1967 | 179.9 | 492.9 |
| 1968 | 202.6 | 555.0 |
| 1969 | 197.6 | 541.3 |
| 1970 | 195.3 | 534.9 |
| **1971 | 118.3 | 323.8 |
| 1972 | 118.6 | 324.9 |
| 1973 | 116.4 | 318.9 |
| 1974 | 105.2 | 288.1 |
| 1975 | 101.5 | 278.2 |
| 1976 | 101.5 | 278.0 |

SOURCE: * SIECA - Statistics on Food and Agriculture in Central America, 1972

** Bureau of Statistics. Ministry of Economy, Republic of Guatemala.
Data on Availability/Utilization, analysis of supply for human consumption and balance of 1970-76. Basic grains (preliminary figures) Guatemala, March 1976.

Table No. 6

PER CAPITA BEAN CONSUMPTION IN GUATEMALA FROM SHEETS OF FOOD BALANCE

| YEAR | CONSUMPTION ANNUAL Kg | DAILY gr. |
|---|---|---|
| * 1960 | 7.7 | 2.1 |
| 1961 | 8.1 | 22.2 |
| 1962 | 8.7 | 23.8 |
| 1963 | 8.8 | 24.1 |
| 1964 | 10.1 | 27.7 |
| 1965 | 10.7 | 29.3 |
| 1966 | 10.6 | 29.0 |
| 1967 | 10.3 | 28.2 |
| 1968 | 10.1 | 27.7 |
| 1969 | 10.7 | 29.3 |
| 1970 | 10.2 | 27.9 |
| ** 1971 | 10.2 | 28.0 |
| 1972 | 9.9 | 27.2 |
| 1973 | 10.2 | 28.0 |
| 1974 | 9.8 | 26.9 |
| 1975 | 10.3 | 29.1 |
| 1976 | 10.2 | 28.1 |

SOURCE: * SIECA: Statistisc on food and agriculture in Central America 1972

** Bureau of Statistics. Ministry of Economy Republic of Guatemala
Data on availability/utilization, analysis of supply for human consumption and sheet of food balance 1970-76. Basic grains (preliminary figures) Guatemala, March 1976

the same, with an average of about 28 grams per person per day for the whole country. These data indicate that diets have deteriorated in the last few years and that calorie consumption has decreased, exacerbating the malnutrition problem as the population increases and food availability decreases.

Based on family diet surveys of food consumption in pre-school children, calorie and protein deficits for this age group are greater than for the rest of the family. The 1965 INCAP surveys showed the average per family consumption of proteins and calories was more adequate than that of children, especially 1-2 years old. Other INCAP community surveys of children 1-3 years old show similar deficits, not only in calories but also in proteins, vitamins, and minerals. After 3 years children accept and follow the diet of adults and increase their consumption of corn and beans. However, any food of animal origin disappears from their diet, leaving it with very poor protein quality.

Studies of children's diets show that the low consumption of calories is more severe than that of proteins. However, the protein quality is so poor that for rural children the protein deficit is as serious as the calorie deficit. The amount of food given to pre-school children is influenced by income constraints and cultural beliefs of rural families. Despite the availability of food within a family, food consumed by pre-school children remains limited, regardless of the income level of the family.

As a general rule women in rural areas, and particularly in Indian communities practice breast-feeding. From a longitudinal study of a community in the Altiplano during an eight year period, it was found that all women breastfed their babies. The same practice is observed in ladino women living in the rural areas. Breast-feeding is continued for 12 months or more (an average of 18 months) and in some cases it extends beyond two years. After three months children begin eating food, such as cereal "atoles", bean or vegetable soup, tortillas, or bread in small amounts.

The quality of human milk is similar in its nutritional composition in Indian and ladino women belonging to different

income groups, at least during the first few months. Afterwards, malnutrition of the mother affects milk production and composition. In comparing milk of well-nourished mothers with that of mothers suffering malnutrition, the protein, lactose and fat content is similar, but malnourished women lack vitamins which diminishes the quality of their milk. If women are given vitamin A supplements, the vitamin A level of the milk is increased.

Because of the influence of Western customs among low income groups in urban areas, mothers tend to decrease the duration of breast-feeding. According to an INCAP study breast-feeding, on an average, lasts only six months in Guatemala City. In higher income groups the period is shorter, with weaning taking place at one or two months.

The diet of pregnant women is also a nutritional problem in Guatemala. Studies made in the rural areas show that women do not increase their food intake during pregnancy, or increase it only a little during the last trimester. Thus, the calorie intake of women does not meet their minimum energy requirements. Studies made by INCAP have demonstrated that because of this deficiency, the addition of calories to the diet improves the nutritional status of both mother and child. The same applies to nursing mothers who have a deficiency in calorie consumption, despite the fact they are capable of a long breast-feeding period. The amount of milk produced after six months is very low compared to the milk production of women in other areas.

Studies made in Guatemala on the impact of maternal nutrition on fetal growth show that 78% of the women, whose consumption was greater than 2200 calories, gave birth to children of satisfactory weight. In comparison only 38% of mothers who had a calorie intake of less than 1800 gave birth to children with satisfactory weights. An increase in calorie consumption results in higher birth weights, ensuring a higher survival rate. Children with low birth weights have a greater risk of becoming malnourished in the first year of life.

#### 4.5.2.3. Traditional Practices and Beliefs Regarding Health and Nutrition

The socio-cultural data on knowledge, attitudes and practices towards health in general, and nutrition in particular,

cannot be generalized by regions or for the nation as a whole. Guatemala is a biethnic, multi-lingual country with several local variations in social and cultural patterns. The following paragraphs describe the most important findings of the literature search on health practices and beliefs and nutrition conducted by INCAP.

The complex concept of hot-cold governs a large part of the ladino and Indian cultures. This concept is more widespread among Indian populations, residents of rural areas, and low income groups in general than among members of the privileged class. The hot-cold difference is a principle that rules the food taxonomy as well as the emotional and physical state of man. It explains to a degree the etiology or disease and indicates the procedures to follow in the prevention, treatment and cure of sickness. Thus, it is a critical element in the practice and care of pregnant women, nursing mothers, and preparation of food for children, babies, and sick people.

The balance between health and sickness is a problem common to all human societies. In Guatemala most of the population, without making ethnic distinctions and with the exception of the cosmopolitan classes, is more oriented towards sickness than health. According to common perception, medicine, whether traditional or modern, has as its main purpose the curing and not the prevention of illness. This orientation towards sickness is explained in part by the fact that much of the etiology of sickness in the traditional thinking is supernatural, and, thus, uncontrollable. There is very little that man can do to prevent illness caused by forces stronger than he.

The microbe theory of sickness - a concept natural to Western medicine - is unknown by the population in general. The system of folk medicine prevails in which the Indian is a major participant and, to a lesser degree, the rural ladino and certain urban sectors. This system attributes the causes of illness to sudden changes in the hot-cold equilibrium, to the actions of supernatural beings, or to negative emotional experiences. Germ theory, even though it is recognized, has little credibility.

The reluctance to adopt modern medical concepts and to modify the system of traditional beliefs does not find parallels in the acceptance of modern medical practices. On the contrary,

the population that participates in folk medicine - specialists as well as patients - tend to accept and demand modern medical treatment after recognizing its rapid and positive effects. What changes, visibly, are health practices and not the associated beliefs. Change in beliefs is slower, more complex and difficult.

The initial reaction of a sick person is to ignore the symptoms and to wait for them to disappear. If this does not happen, the next step is self-diagnosis and self-prescription and treatment. Up to this point the process is similar for both Indians and ladinos. If they do not get better, they will seek specialized care. The Indian goes to a practitioner of traditional medicine first, while the ladino tries to seek modern medical attention. Nevertheless, medical practices of the Indian tend to be more heterogeneous. The Indian may participate in two or more medical systems serially or simultaneously.

The Ladino usually seeks professional care in the earlier stages of the illness than the Indian, even though the more common pattern is to seek medical attention when the illness is at an advanced or serious stage. This behavior correlates with the orientation towards sickness.

The data suggest that the major obstacle for accepting modern medicine in the rural areas, and especially in the indigenous areas, is not treatment nor medical practices per se. The barrier that constrains utilization of modern medicine is the way in which these services are organized and delivered. There are language and cultural barriers which result in different expectations for service and anticipated benefits on the part of the patient and health personnel. The attitudes and values of personnel who represent official modern medicine also inhibit the utilization of these services by the indigenous population, and to a lesser degree, by the ladino population.

The delivery of modern medical services is exclusive and prevents the patient from participating in other medical traditions simultaneously. This implies that the person seeking modern medical attention has to totally reject traditional medicine. This is an obstacle because in the public perception the coexisting medical systems are not competitive, but rather complimentary.

There are many gaps in our knowledge of the anthropological and sociological aspects of health and nutrition in Guatemala. In particular, our greatest ignorance is in the area of practices and beliefs for pre, peri and post-natal care, care and diet of pregnant and nursing women, in breast-feeding and weaning practices, and in the care of childhood diseases. We need to understand the change processes involved in altering these practices.

4.5.2.4 Recommendations

Most of these recommendations are directed at the health sector and in no way constitute an integrated approach or a global solution to the nutrition problem in Guatemala. For this purpose it is necessary to complete phase II, which would cover all sectors related to the nutrition problem.

A. General recommendations

The nutrition problem in Guatemala will not be solved without taking determined and sustained political action. In order to guide political decision-makers, the following recommendations are proposed:

1. Strengthen the institutional infrastructure which will be responsible for analyzing the problem, proposing solutions to decision-makers, and, based on their decisions, formulating a national food and nutritional policy and designing a corresponding action plan by:

a. Providing the Intersectoral Nutrition Commission with professional full-time personnel, clerical personnel and an adequate budget;

b. Inviting other sectors, such as agriculture, education, and finance to send high level personnel to collaborate with the Commission, freeing them, whenever possible, of other obligations;

c. Providing the Commission with control over international foreign aid agreements related to nutrition, i.e. grants, loans, technical assistance.

2. The National Nutrition Commission should draft a National Food and Nutrition Policy from which guidelines can be prepared for a National Food and Nutrition Action Plan. This Plan shall be prepared in close collaboration with all interested sectors. The National Food and Nutrition Plan shall serve as a master plan for existing or future sector plans which will incorporate the nutrition component.

Another task of the Commission shall be to inform all sectors of the progress in understanding the problem, the consequences of malnutrition, and the foreseeable effects of current sector policies on nutritional status. The Commission should also collaborate on the establishment of a National System for Epidemiological and Nutritional Surveillance.

3. The Government should include in the national budget sufficient funds to be used by the various agencies in implementing nutrition programs, or programs with nutrition components, within the context of the overall National Food and Nutrition Plan.

B. Recommendations on data for nutrition planning.

1. In general there is a lack of longitudinal data. As a result a major effort is required to identify trends in the variables and indicators used in the nutritional assessment. Available data should be updated and completed, using retrospective data; all future data compilation should be based on annual data, in order to make comparisons and projections over time.

2. Since most availab le data is aggregated nationally, and disaggregated data, if found, is generally by department, it is recommended that information be disaggregated by region, because regional diversity raises the probability of finding regional differences, not only in the prevalence of malnutrition, but in its causes and prevention.

3. One of the major obstacles to nutrition planning is the poor quality of vital statistics, particularly in the rural areas. On one hand, there is an important under-registration of data on infant mortality; on the other hand, regsitries of the causes of death and consultations in health facilities are incomplete and not standardized. Therefore, a complete restructuring of the current data compilation and dissemination system including standardization of information should be undertaken. Malnutrition as an associated cause of death should be incorporated in diagnoses and on death certificates. Standards should be established, personnel including physicians should be trained in nutrition and adequate supervision should be provided.

4. A tripartite working group should be created, composed of the National Economic Planning Council, Ministry of Public Health and Social Assistance and General Bureau of Statistics, in order to implement the above recommendations.

5. The national food balance sheets should be updated. For this purpose the National Bureau of Statistics should add personnel.

6. The National Bureau of Statistics should complete compilation, processing and analysis of the major demographic variables in the Guatemalan population as soon as possible.

7. Four specific nutritional problems should be studied from an epidemiologic viewpoint: protein-calorie malnutrition in children under 5 years of age: nutritional anemia, low birth weight, and endemic goiter.

8. The nutrition assessment should be expanded to include sectors such as agriculture and education in order to achieve a global diagnosis of the country's nutritional problem (the so-called Phase II of the nutrition assessment). The National Food and Nutrition Commission of the National Economic Planning Council has already undertaken various related studies which should be supported by the interested sectors. Phase II of the nutrition assessment should begin immediately.

C. Specific recommendations for the health sector.

Recommendations proposed for the health sector are based on findings and conclusions of this study (INCAP - Nutrition Phase I), general conclusions from an examination of the health sector, and on the WHO Resolution 30-51 of the XXX World Health Organization Meeting which, "requested governments ..... to give highest priority to the problems related to food and nutrition in their health programs...".

It is recommended that:

1. The Ministry of Public Health and Social Assistance, by means of an official declaration, recognize that the relationship between infant malnutrition and gastroenteritis is the major health problem in Guatemala.

2. The Ministry of Public Health and Social Assistance create a working group to design a plan of action for nutrition within the health sector over the short and medium term which will support the work of the National Nutrition Commission of the National Economic Planning Council.

This group should consist of high level officials, department heads, nutrition specialists and pediatricians. The officials and specialists on the team should meet periodically, at least weekly, to prepare a national conference for the health sector personnel, at which the plan of action would be presented and discussed. The plan of action should include not only the Ministry of Public Health and Social Assistance, but also other agencies in the sector, especially the Social Security Institute. The Ministerial resolution which will create the working group should be very specific in stating the terms of reference and give a firm date for presenting conclusions.

In addition to preparing an action plan for the short and medium term, the working group should define the role of the health sector in nutrition, especially the role of the Ministry's Department of Nutrition and design concrete and realistic nutrition interventions in the health sector.

3. The action plan should includeor consider the following suggestions:

a. Place substantial emphasis on motivation and orientation of health personnel, especially physicians, nurses and EPSs[1/], to make them aware of their role in alleviating malnutrition;

b. Emphasize the integration and coordination of nutrition programs at all levels. Coordinate existing and future nutrition programs, including education and recuperation services, placing them under the responsibility of the area health chiefs along with budgetary resources and necessary decision-making authority. At the same time, positions for nutritionists or physicians with training in nutrition should be created in the regional health areas with sufficient salary and professional incentives.

c. Provide or expand integrated basic health services including nutrition to low income families;

d. Establish in all health facilities the early detection, treatment, referral and counter-referral of all persons suffering from acute malnutrition, including the preparation of standards, training of personnel, and systems for supervision;

e. Improve treatment for malnourished people in hospitals by establishing norms and intensive training of all medical and paramedical personnel;

f. Define the role of paramedical personnel, TSRs and EPSs in nutrition programs, especially in the two activities mentioned above;

g. Accelerate existing programs for construction of water and sewerage systems using maximum community participation, accompanying such activities witch intense educational campaigns on the use of potable water and latrines;

h. Expand oral rehydration services for infant gastroenteritis;

i. Reconsider the norms for the care of pregnant women in order to prevent low birth weights; and

---

1/ The Ministry's program for last year medical school students to spend one year practicing in the rural areas.

j. Make a concerted effort to train health personnel at all levels in nutrition in such a way that everyone receives training within the next few years. At the same time, the supervisory system should be restructured to include nutrition. The emphasis of the training effort should be on incorporating nutrition into the routine activities of the health service.

D. Additional Suggestions for Future Nutrition Programming in Guatemala.

The Mission, after reviewing the INCAP recommendations for nutrition (described above), developed additional suggestions for program design and implementation which could build on existing Mission-financed projects. They are listed below, but are not necessarily described in order of priority.

1. Expand the availability of family planning services, particularly in the rural areas. Allow MCH paramedical personnel to deliver family planning services.

2. Building on the existing rural health service, train midwives and health promoters, especially in Indian areas, in nutrition education, emphasizing breast-feeding, health education practices, well baby care, and non-clinical based rehydration techniques.

3. Train auxiliary nurses and TSRs in techniques of rehydration of infants and allow this service to be delivered in rural health posts and other facilities in rural areas.

4. Provide technical assistance to the MCH's Nutrition Division in the administration, management, and implementation of their SERN Center program, beginning with an evaluation of the existing program. Incorporate fathers into the program and emphasize the educational aspects of the program.

5. Evaluate the nutritional impact of the PL-480 MCH and school feeding programs with a view to increasing their effectiveness. Consider developing a nutrition education and food preparation program in conjunction with the distribution of the PL 480 food supplement. Support efforts to develop local foods to replace the PL-480 foods over the long-term and develop minimum cost diets for various regions using local foods.

6. Examine existing school garden programs assisted by the Peace Corps and various PVO's to see if they warrant replication.

7. Evaluate the effectiveness of INCAPARINA to see if low-income people can afford to purchase it in amounts which will impact favorably on malnutrition.

8. Develop a specific nutrition program for fincas where third degree malnutrition is very high.

9. Study breast-feeding practices, weaning practices, and care of children and pregnant women among Ladino and Indian populations with the view to changing dietary patterns and harmful child rearing and pre-natal care.

10. Incorporate in any proposed nutrition program ways to measure outcome (impact) before the program is terminated.

11. Using BVE and BRE experiences incorporate nutrition education message into existing broadcasts. Develop new messages dealing with rehydration and health practices and other behavior in Indian languages. Develop supportive nutrition education materials for use by the BVE promoters.

12. Support studies on the effects of food price, policy changes on food purchasing power of low income families.

13. Use USPA (Unidad del Sector de Planificación Agricola, Ministry of Agriculture) small sample frame survey group to gather regionalized, nutritional status and food production data.

14. Explore ways to increase bean consumption of low income families.

15. Use training and technical assistance funds available under Loan 026 for special nutrition studies. Use technical assistance funds available under Loan 021 to begin phase II nutrition assessment, and provide other consultants required by the GOG's Food and Nutrition Policy Planning Group.

16. Continue support to ICTA's high lysine corn project for the Highlands.

## 4.6 Environmental Sanitation 1/

### Introduction

In 1976, 14% 2/ of the rural population of Guatemala had access to water from constructed systems (an increase of almost 50% since 1970), and an estimated 13% 2/ had latrines. Sanitary solid waste disposal in rural areas is practically non-existent. Because of this, limited coverage of these sanitation services, the leading causes of both morbidity and mortality in Guatemala are environmentally-related diseases. Thus, environmental sanitation plays a crucial role in the health status of the country.

In countries where adequate water and sewerage facilities are not available to a majority of the population, diarrheal illness is a principal cause of morbidity and mortality. In Guatemala diarrheal illness is only surpassed by respiratory illness on the list of the ten leading causes of sickness and death.

Transmission of enteric infections which cause diarrhea may be by non-potable water, fecal-oral contamination, or both. Given that 80% of children under five years of age are suffering from malnutrition, enteric infection morbidity and mortality affect most of the children under five years of age. The absolute magnitude of the diarrheal problem is unknown because children's diarrhea 3/ generally does not come to medical attention in rural areas.

The chapter is organized, first, around various social science aspects of environmental sanitation, e.g., socio-cultural and manpower issues. Second, the discussion is focused upon specific problem areas, e.g., development of rural water systems and latrines, solid waste disposal, and food handling practices in community markets.

---

1/ See Annex 5.14: Environmental Sanitation, for a detailed description of the status of environmental sanitation in Guatemala and proposed programs and cost estimates.

2/ Data supplied by Unidad Ejecutora del Programa de Acueductos Rurales (UNEPAR), División de Saneamiento Ambiental (DSA), Dirección de Desarrollo de la Comunidad (DDC).

3/ In children less than five years old, the vast majority of diarrheal episodes are termed non-specific, in that specific bacterial or protozoan pathogens are not identifiable. Studies in Mexico, Bangladesh, and other countries have identified a reovirus and enterotoxigenic Escherichia coli bacteria as frequent causes of childhood diarrhea. These and other pathogens responsible for childhood diarrhea are not yet amenable to specific therapy.

### 4.6.1 Social Science Aspects of Environmental Sanitation

Since data on environmental sanitation attitudes and practices is very limited, the HSA team undertook a study of this area.

Six ecologically and ethnically discriminated field sites in Guatemala were surveyed to examine the behavior of individuals and groups with respect to environmental sanitation in the context of the domestic and community environment in which that behavior occurs. The survey was designed to view the possible barriers - social, cultural, psychological and economic- to the introduction of new environmental sanitation technology, and the elements that might facilitate such an introduction or provide suitable points of intervention.

The leading criterion for site selection to reflect the geophysical environment was altitude, and the principal socio-cultural discrimination was ethnicity, i.e., Indian/Ladino. 1/ The following sites were selected: (see Map 1).

1. Soloma - rural, municipal capital (cabecera), Western Highlands, Indian.

2. Soloma - distant aldeas, Western Highlands, Indian.

3. Finca Los Andes - coffee finca, South Coast, Bocacosta, Indian.

4. Teculután - semirural municipio, Eastern Desert, Ladino.

5. Izabal - aldeas, eastern tropical zone, Ladino.

6. Patulul - cabecera municipal, South Coast, Pacific Plain, Ladino.

At each site fifty families, randomly selected, were interviewed for a total sample size of 300 families. Data were collected in five major categories:

1. The disposal of domestic wastes - human, animal and solid wastes.

2. The source, transport, storage, quality and utilization of potable water.

3. Patterns of personal and domestic hygiene, including housing.

---

1/ In each chart in this sub-part communities are designated I or L to indicate whether the majority of the population is Indian or Ladino.

MAP 1

ENVIRONMENTAL SANITATION

STUDY OF ATTITUDES AND PRACTICES
LOCATION OF STUDY SITES

4. Community participation in relation to health and sanitation, and exposure to previous educational programs in the area of preventive health.

5. Perceptions of the nature and importance of domestic and environmental sanitation problems, the adequacy of existing solutions to those problems, and appraisal of alternative technologies.

The entire study entitled Environmental Sanitation: A Study of Attitudes and Practices, May 1977, is included as Annex 5.15 of the Health Sector Assessment.

On the basis of this study, it is clear that while there are many similarities between rural Indian and rural Ladinos, meaningful variations exist between the environmental sanitation practices of Indians and Ladinos to the degree that the same environmental sanitation program will not serve both.

Level of Knowledge/Awareness. The level of knowledge about environmental sanitation is generally low and has three principal characteristics: 1) It is uneven, with consciousness in some areas being quite high and in others totally absent; 2) in some areas where consciousness is high, it tends to be based on a sort of rote indoctrination rather than a real understanding; and 3) even where consciousness is high, economic or environmental impediments prevent compliance with one's own beliefs.

The lowest levels of knowledge about environmental sanitation behaviors and hygiene were found on the finca studied.

The level of contact through any medium, e.g., radio, television, newspapers, health programs, etc. on the subject of environmental sanitation is quite low, but it is lowest in Indian areas and on the finca: however, the level of expressed interest in the subject is high. (Positive responses of interest need to be viewed cautiosly since they may be given out of courtesy to the interviewer.) Respondents seemed aware that they do not know how to cope with problems of the environment and that no one has told them much about it. The majority felt they were practicing the little they had been told, but some admitted not doing so.

Discrepancies were observed between answers to questions and behavior but the fact that respondents gave the response that would portray themselves as acting in the "correct" manner indicates a higher level of consciousness than public health workers commonly believe exists. However, this consciousness does not

appear to be sufficiently internalized to consistently govern behavior. For example, the germ theory as a cause of disease has not been integrated into existing belief systems, especially in the Indian population, and therefore, the relationship between environmental sanitation and disease is not clear.

It is well understood that insects carry diseases. However, ignorance of what diseases specific insects carry is widespread. Insects are combatted in proportion to their capacity to annoy; thus, flies, less annoying than other insects, receive a less vigorous control than mosquitoes. Food and water are left uncovered, although covering food, and water are left uncovered, although covering food, while erratic, is more common than not.

The knowledge level concerning the nature of the diseases carried by water is very low. People do not understand how water can make them sick and in what ways. There is a generalized knowledge that boiling of water is desirable. However, there appears to be no conceptual linkages between a known polluted water supply and preventive or corrective actions. Thus, water is boiled an insufficient amount of time and boiled water containers are not covered or properly cleaned.

Water Supply. As Table 4.6.1-A indicates, 45% of the total sample had a water supply either in the house or yard; 14% had access to a neighborhood tap. However, 39% had to obtain water from another source, at varying distances from home; the majority of those who had to carry water were in the municipality and aldeas of Soloma and on the Finca Los Andes, the primarily indigenous sites. There was some difference by ethnicity, with 86% of women in indigenous sites and 76% of women in Ladino sites doing the hauling of water; 34% of all women used cántaros, small 1/ and large, for hauling; 28% used pails, and the balance used tinajas 2/ and a mix of other containers.

The balance of the survey population bought water from the municipality at a fixed price, varying from Q.0.30 to Q.0.50 per month, once the initial installation cost was paid. No one in the sample paid to have water brought in any kind of container such as barrels, tinajas, and cántaros.

---

1/ A small cántaro holds ten liters; a large cántaro twenty liters.

2/ A tinaja is a round jar made of plastic or clay and is commonly used for carrying and storing water. The capacity is variable, but usually is approximately four gallons.

TABLE 4.6.1-A

WATER SUPPLY

| | Tap in House | Private Tap in Yard | Neighborhood Tap | Municipal Tap | Well | Spring | River | Lake | Rain |
|---|---|---|---|---|---|---|---|---|---|
| Soloma (Cab.)/I | 26% | 10% | 31% | 22% | 8% | 0% | 2% | 0% | 0% |
| Soloma (Ald.)/I | 0% | 4% | 24% | 0% | 39% | 20% | 12% | 0% | 0% |
| Finca Los Andes/I | 14% | 8% | 14% | 64% | 0% | 0% | 0% | 0% | 0% |
| Tecultán/L | 10% | 52% | 6% | 4% | 2% | 2% | 24% | 0% | 0% |
| Izabal (Aldeas)/L | 54% | 15% | 6% | 2% | 6% | 4% | 13% | 0% | 0% |
| Patulul/L | 48% | 28% | 4% | 0% | 12% | 0% | 4% | 0% | 0% |
| Average % in Total Population | 25% | 20% | 14% | 15% | 11% | 4% | 9% * | | |

* Totals to less than 100% are due to rounding and elimination of decimal points.

Water Storage. Forty-seven percent of the total population used tinajas for water storage; this usage was relatively evenly distributed across the following sites: Soloma (cabecera and aldeas), and Izabal (aldeas). In Patulul, Finca Los Andes, and Teculután, the majority used primarily pilas 1/ for storage; 41% in Soloma (cabecera) used tinajas as the other principal mode of water storage. Not surprisingly, hygiene procedures correlated in some measure with the size of the storage container used. In Soloma (cabecera and aldeas), 83% and 65% of respondents said they cleaned water containers once a day. In Teculután, with a somewhat more even distribution between tinaja (38%) and pila use (approximately 50%), 51% said they cleaned containers once a day and 49% cleaned when the container was empty. However, in Izabal, where 65% of respondents used tinajas for storage, the majority (68%) cleaned these containers only when the water was gone.

Water Quality: Attitudes and Behaviors. Table 4.6.1-B presents a comparison of attitudes concerning water quality and actual behavior. In all cases, except for Soloma, there is a correlation between evaluation of water as of good quality and non-treatment of water. This further correlates with complaints 2/ or lack of complaints about water quality, again except for the Soloma case.

The question is: Why, in Soloma, respondents appraise water quality as "good to drink" (buena para tomar como viene), yet have complaints about it and have a high percentage of treatment activity? The reason suggested by field researchers is that Soloma, cabecera and aldeas, has a very active rural health promoter 3/ program which is apparently sufficiently effective to induce its client population to treat their water, despite an initial belief that the water is good to drink "as it comes". This discrepancy may either represent a transitional stage in which a behavior change is leading a belief change, or it may mean that the current behavior

---

1/ A pila is a concrete water storage unit approximately one meter deep. The cubic meter capacity varies from about four to more than one hundred. Within this tank are washing areas, with separate drains, which separate the supply of clean water from the washing waste water. Clean water is dipped from the clean side and used in the washing area(s).

2/ 'Complaints' include: bad taste, bad smell, poor color, containing impurities (suciedades), containing dirt particles (tierra en suspensión), contaminated.

3/ The promoters were indigenous to the area and had supposedly been trained by the Maryknoll Health Program.

TABLE 4.6.1-B

ATTITUDES AND BEHAVIORS CONCERNING POTABLE WATER

| | Evaluation of Quality | | Handling of Water | | Complaints about Water Quality | |
|---|---|---|---|---|---|---|
| | Good | Not Good | Treatment | Non-Treatment | None | All Complaints |
| Soloma (Cab.)/I | 77% | 17% | 61% | 39% | 35% | 65% |
| Soloma (Ald.)/I | 98% | 2% | 95% | 5% | 20% | 80% |
| Los Andes/I | 96% | 4% | 10% | 90% | 62% | 38% |
| Teculután/L | 80% | 20% | 22% | 78% | 75% | 25% |
| Izabal/L | 96% | 4% | 16% | 84% | 70% | 30% |
| Patulul/L | 100% | 0% | 22% | 78% | 91% | 9% |

will persist as long as the health promoter presence supports it, to be followed by possible reversion if the promoters' support diminishes in any way. Virtually all of the Soloma populations that treated water (cabecera 94%; aldeas 98%) boiled it. Table 4.6.1-C displays the average boiling times and ranges for all six sites.

TABLE 4.6.1-C

BOILING-TIME AVERAGES AND RANGES

| | Average Boiling Time (in minutes) | Range of Time Boiled (in minutes) |
|---|---|---|
| Soloma (cabecera)/I | 19 | 2 to 120 * |
| Soloma (aldea)/I | 13 | 5 to 30 |
| Finca Los Andes/I | 25. | 20 to 30 ** |
| Teculután/L | 12 | 2 to 30 |
| Izabal/L | 11 | 3 to 30 |
| Patulul/L | 18 | 5 to 30 |

* The 120-minute case was unique. Excluding it, the upper end of the range becomes 30 minutes.

** There were only two cases in Los Andes of water boiling.

With the exception of Finca Los Andes, where only two cases of water-boiling were encountered, the range varied from site to site from two minutes to thirty (excepting the aberrant case in Soloma (cabecera) of 120 minutes). The average boiling times were from eleven to twenty-five minutes, averaging again, for the total, fifteen minutes. The number of low boiling times (2-8 minutes) was relatively low, but there were a fair number of ten-minute boiling times, which are at the minimum for desirable hygienic practice. There is some indication from participant observation that the quality of the practice is ineffective because the water is not boiled long enough, contaminated vessels are used, and acceptably-treated water is mixed with untreated water.

There was a slightly different pattern in beliefs about whether or not water or lack of water could cause illness. This pattern appears in Table 4.6.1-D.

TABLE 4.6.1-D

BELIEFS ABOUT WATER AS CAUSE OF DISEASE

| | Water as Cause of Disease | | Lack of Water as Cause of Disease | |
|---|---|---|---|---|
| | Yes | No | Yes | No |
| Soloma (cabecera)/I | 91% | 6% | 100% | 0% |
| Soloma (aldea)/I | 80% | 5% | 92% | 2% |
| Finca Los Andes/I | 66% | 28% | 34% | 50% |
| Teculután/L | 68% | 30% | 86% | 10% |
| Izabal/L | 83% | 15% | 86% | 8% |
| Patulul/L | 92% | 0% * | 96% | 0% |

* Lack of equivalence to 100% due to "no responses/do not know".

There was high degree of perception in Soloma concerning water or the lack of water as being potential causes of illness, to be expected as a result of the health aide activity as mentioned above. There was a similarly high perception in Patulul and somewhat less in the Izabal aldeas; the latter have also been active health aide foci within the radius of the GOG auxiliary training program at Quiriguá, but health aide effectiveness may have been slightly diluted in the 1976 earthquake. The lowest water-hygiene consciousness was on the Finca Los Andes, correlating with a perception of water quality, low treatment activity, and fewer complaints about water quality. Whether this is a well-founded set of beliefs and behaviors is an open question.

Those who were asked what illnesses could be caused by water or lack of it responded as described in Table 4.6.1-E. The percentage of "no response" is very high in the indigenous areas, an

TABLE 4.6.1-E

ILLNESSES CAUSED BY WATER OR LACK OF WATER

| | Do Not Know/ Do Not Answer | Diarrheas * | Parasites | Other * |
|---|---|---|---|---|
| oloma (Cab.)/I | 67% | 10% | 10% | 12% |
| oloma (Ald.)/I | 86% | 8% | 6% | 0% |
| os Andes/I | 93% | 7% | 0% | 0% |
| eculután/L | 44% | 16% | 13% | 27% |
| zabal/L | 50% | 21% | 29% | 0% |
| atulul/L | 26% | 4% | 22% | 48% |

Others included: dehydration, fever, vomiting, colds, stomach aches, typhoid/typhus, cholera, diarrhea, kidney trouble, infections, amebas, blood disorders, rashes (ronchas), malaria, 1st. grade malnutrition, and failure to thrive ("El cuerpo no va").

average of 82% for the three sites. In the three Ladino sites, the average in this category is 40%. Not surprisingly, the degree of reasonably correct information about water-borne diseases was also highest in the Ladino groups. No one in either group made any point of direct connection between lack of water and hygiene.

General Attitudes About Personal Hygiene

When asked why, in general, it was desirable to keep oneself clean, the categories emerged that are presented in Table 4.6.1-F, together with their distribution by site. The largest category for both groups was, reasons of general health, and/or avoidance of illness. However, only in the Ladino group was there explicit connection made between the term "hygiene" and "keeping oneself clean", at the same time there was ample appreciation in the indigenous group of the physically and psychologically beneficial aspects of hygiene. It may be that use of the term "hygiene" itself in health education is not a particularly relevant usage nor compatible with indigenous lexicons, and that health educators might better talk in terms of health and physical and psychological well-being.

Solid Waste Disposal

Solid wastes are handled differently in indigenous and Ladino areas (see Table 4.6.1-G). In Soloma (aldea and cabecera), 50% of the respondents add their biodegradable wastes to their compost heaps, separating out what is not biodegradable and throwing it in the patio (see Table 4.6.1-H). In Ladino areas and in Los Andes solid wastes are generally burned or thrown on the property; there is virtually no use of composting in Ladino areas, nor is the knowledge level high (see Table 4.6.1-I). Only in Soloma (cabecera and aldea) and Patulul do the majority of those interviewed consider compost an effective fertilizer; in the other sites an average of 48% do not know what composting is.

Thus, it would seem that efforts to use composting as a solid waste disposal technique might have a good sociocultural base in indigenous areas; in Ladino areas, to initiate such approaches would be to begin at ground zero.

Disposal of Animal Excrement

In Soloma (cabecera and aldea), 65% of those interviewed collect animal excrement to use as fertilizer, while in the other four sites this is rarely done. The general attitude, however, in all sites, is that animal excrement is excellent fertilizer; the reason it is not used is that either the subjects do not plant or feel that fertilizer is not really necessary in their particular area.

TABLE 4.6.1-F

ATTITUDES ABOUT THE DESIRABILITY OF PERSONAL HYGIENE

| | For more General Health Reasons | Avoids Illness | Remove Dirt Smells | For Reasons of Hygiene | Don't Know | Just Generally Good | Not to be Bored | One Feels Fresh | One Feels Tranquil | Children Grow Better |
|---|---|---|---|---|---|---|---|---|---|---|
| Soloma (Cab.)/I | 18% | 71% | 3% | 0% | 0% | 0% | 0% | 3% | 5% | 0% |
| Soloma (Ald.)/I | 36% | 0% | 56% | 0% | 0% | 3% | 0% | 3% | 3% | 0% |
| Finca Los Andes/I | 47% | 0% | 0% | 0% | 30% | 3% | 17% | 0% | 0% | 0% |
| Teculután/L | 64% | 0% | 17% | 13% | 2% | 4% | 0% | 0% | 0% | 0% |
| Izabal/L | 41% | 43% | 14% | 0% | 0% | 2% | 0% | 0% | 0% | 0% |
| Patulul/L | 31% | 31% | 0% | 27% | 0% | 7% | 0% | 4% | 0% | 0% |
| | 40% | 24% | 15% | 7% | 5% | 3% | 3% | 2% | 1% | .3% |

TABLE 4.6.1-G

SOLID WASTE DISPOSAL

| | Nothing Special | Burn | Bury | Throw in Patio | Throw on Property | Compost | Throw no Special Place |
|---|---|---|---|---|---|---|---|
| Soloma (Cab.)/I | 2% | 2% | 0% | 6% | 16% | 60% | 14% |
| Soloma (Ald.)/I | 2% | 0% | 0% | 0% | 59% | 35% | 2% |
| Finca Los Andes/I | 4% | 47% | 4% | 7% | 2% | 0% | 35% |
| Teculután/L | 0% | 66% | 0% | 2% | 10% | 2% | 20% |
| Izabal/L | 2% | 43% | 16% | 6% | 18% | 2% | 12% |
| Patulul/L | 0% | 40% | 0% | 4% | 12% | 4% | 40% |

TABLE 4.6.1-H

COMPOST HEAPS

| | Have | Are not Agriculturalists | No Acquaintance With |
|---|---|---|---|
| Soloma (Cab.)/I | 76% | 2% | 2% |
| Soloma (Ald.)/I | 65% | | |
| Finca Los Andes/I | 4% | 2% | 34% |
| Teculután/L | 20% | | |
| Izabal/L | 7% | | 7% |
| Patulul/L | 4% | | |

TABLE 4.6.1-I

KNOWLEDGE ABOUT AND ATTITUDES TOWARD COMPOSTING

| | No Knowledge | Propagates Insects | Attracts Animals | Damages Crops | Is Desirable | Other |
|---|---|---|---|---|---|---|
| oma (Cab.)/I | 2% | 0% | 2% | 0% | 81% | 6% |
| oma (Ald.)/I | 4% | 2% | 0% | 0% | 65% | 2% |
| Andes/I | 67% | 0% | 0% | 0% | 33% | 0% |
| ulután/L | 44% | 2% | 4% | 0% | 26% | 8% |
| bal/L | 32% | 0% | 0% | 0% | 46% | 0% |
| ulul/L | 32% | 0% | 0% | 0% | 60% | 0% |

TABLE 4.6:1-J

ATTITUDES TOWARDS INSECT PESTS

| | Transmit Disease | Sting | Harmful to Health | Other | Contaminate Food | Do all Mentioned | Believe Insects to be Disgusting | Believe Insects to be Dangerous | Believe Insects to be Irritant |
|---|---|---|---|---|---|---|---|---|---|
| Soloma (Cab.)/I | 67% | 2% | 8% | 4% | 6% | 12% | 2% | 0% | 0% |
| Soloma (Ald.)/I | 66% | 4% | 0% | 2% | 2% | 4% | 4% | 0% | 0% |
| Los Andes/I | 10% | 39% | 2% | 27% | 8% | 10% | 2% | 0% | 2% |
| Teculután/L | 64% | 8% | 7% | 8% | 2% | 0% | 8% | 4% | 0% |
| Izabal/L | 32% | 8% | 36% | 0% | 6% | 2% | 8% | 8% | 0% |
| Patulul/L | 50% | 17% | 13% | 13% | 4% | 0% | 0% | 4% | 0% |
| Average of total Population | 48% | 13% | 11% | 9% | 5% | 5% | 4% | 3% | .5% |

TABLE 4.6.1-K

LEVEL OF HYGIENE

| | Cover Food | Cover Water Containers | Pigs in House | Garbage Separation | Children Wear Shoes | Women Wear Shoes | Men Wear Shoes | Level of Household Hygiene | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Good | Average | Poor |
| Soloma (Cab.)/I | 96% | 57% | 10% | 91% | 89% | 96% | 96% | 8% | 92% | |
| Soloma (Ald.)/I | 91% | 53% | 9% | 31% | 44% | 71% | 42% | 5% | 95% | |
| Los Andes/I | 45% | 0% | 6% | 0% | 39% | 65% | 86% | | 43% | 57% |
| Teculután/L | 92% | 91% | 0% | 0% | 39% | 62% | 50% | 75% | 21% | 4% |
| Izabal/L | 88% | 71% | 19% | 33% | 74% | 67% | 70% | 20% | 51% | 29% |
| Patulul/L | 100% | 100% | 0% | 100% | 88% | 71% | 89% | 84% | 16% | |

Attitudes Toward Insect Pests

Somewhat surprisingly, or at least contrary to an opinion in public health circles that seems to be generalized, the perception of insect pests as transmitters of disease is relatively high. Soloma (cabecera and aldea) has already been cited as an area where health promoters are active and appear effective, but there is at least 50% awareness in Patulul and Teculután (see Table 4.6.1-J). However, only a very low percentage in any area know what diseases are borne by insect pests or other animals, especially the ubiquitous pig, nor is there any idea of behavior that is achievable, given scant economic means to combat such pests, with the possible exception of food covering to avoid contamination. Insecticides are frequently cited as effective but few can afford them.

Level of Household Hygiene

The general level of household hygiene is represented in Table 4.6.1-K. The practice of covering food containers is uniform, with the exception of the finca environment of Los Andes. The covering of water containers, however, shows a marked separation between indigenous and ladino sites. The relatively low rates of coverage in the indigenous sites have significant implications for water contamination. Water may be potable at the moment it leaves the tap, but the handling and storage practices in the majority of these households virtually assure contamination. Therefore, water storage is an important consideration in the design of a community water system.

Latrinization

TABLE 4.6.1-L

DISTRIBUTION OF LATRINES

| | Have | Do not have | Sharing | Want |
|---|---|---|---|---|
| Soloma (cabecera)/I | 71% | 29% | 56% | 92% |
| Soloma (aldea)/I | 12% | 88% | 14% | 100% |
| Finca Los Andes/I | 8% | 92% | 6% | 37% |
| Teculután /L | 72% | 28% | 31% | 100% |
| Izabal /L | 66% | 34% | 5% | 94% |
| Patulul/L | 83% | 17% | 17% | 100% |

Soloma and Teculután both have the same percentage of latrines, yet sharing with households who do not have latrines is higher in Soloma than in Teculután. In Soloma (aldea) and Los Andes, where the percentage of latrines is low, there is also very little sharing of latrines. There is a consensus, with the exception of Los Andes, that it would be desirable to have a latrine. The reason given in Los Andes for not wanting a latrine is that they cost too much and they are not necessary.

Motivation for Wanting Latrines

Table 4.6.1-M shows the distribution of motivation for wanting latrines. It is clear that for the large majority of the total population (range 78 to 100%), latrines are associated with and considered desirable for reasons of health and cleanliness. Only in indigenous areas is some consideration given to comfort.

TABLE 4.6.1-M

MOTIVATION FOR WANTING LATRINES

| | Better Health | Comfort | Cleanliness | Other* |
|---|---|---|---|---|
| Soloma (cabecera) /I | 21% | 21% | 57% | 0% |
| Soloma (aldea)/I | 5% | 7% | 79% | 0% |
| Los Andes/I | 0% | 6% | 0% | 39% |
| Teculután/L | 20% | 0% | 70% | 10% |
| Izabal/L | 47% | 0% | 6% | 47% |
| Patulul/L | 20% | 0% | 60% | 20% |

* This category principally includes health-related responses consisting of disease prevention and the naming of specific illnesses.

## Types of Latrines in Use

Table 4.6.1-N shows the percentage distributions of types of latrines used by the study population at the time of the interviews. The most prevalent is the private pit latrine, followed by the shared pit latrine.

TABLE 4.6.1-N

TYPES OF LATRINES

| | Private Pit Latrine | Shared Pit Latrine | Flush in House | Simple Hole | Flush Outside | Other |
|---|---|---|---|---|---|---|
| Soloma (cab.)/I | 30% | 19% | 7% | 24% | 12% | 0% |
| Soloma (aldea)/I | 27% | 45% | 0% | 18% | 9% | 0% |
| Los Andes/I | 4% | 15% | 8% | 0% | 0% | 0% |
| Teculután/L | 49% | 3% | 44% | 0% | 5% | 0% |
| Izabal/L | 79% | 3% | 3% | 10% | 3% | 0% |
| Patulul/L | 25% | 0% | 15% | 0% | 0% | 60% * |
| AVERAGE FOR TOTAL POPULATION | 36% | 14% | 13% | 9% | 5% | 10% |

* This type is a cement latrine connected to a municipal drain flushed by drain water from the household pilas.

## Latrine Accessories

The latrines in use in all six sites were mostly (over 80%) equipped with cover, walls and roof, as well as a seat on a concrete or wooden base.

In all areas the consensus was that seat, cover, and walls were necessary. The seat was perceived as necessary for both comfort and cleanliness, walls were obligatory in all cases to preserve privacy, and the cover as having the function of reducing odor and the number of insects.

## Levels of Satisfaction with Existing Latrine Facilities

The levels of satisfaction seem to vary inversely with the number of latrine facilities. In Soloma (cabecera) and Patulul, where 71% and 83%, respectively have latrines, the levels of dissatisfaction were 63% and 76%. On the other hand, in Soloma (aldea), Teculutan, and Izabal, where latrine facilities are at 12%, 66%, and 83%, respectively, the levels of satisfaction are 82%, 87%, and 91%. These differences are significant in that the higher rates of dissatisfaction in Soloma (cabecera) and Patulul would seem to represent a desire for a better latrine.

The improvement in facilities most frequently desired is the construction of municipal drain systems or septic tanks.

## Latrine Location

An extremely relevant, but much neglected factor, is where to place the latrine. The preferences compiled in this study show considerable variation from site to site, a variation which is meaningful for program design.

In the indigenous sites of Soloma (cabecera) and Soloma (aldea), 70% and 83%, respectively, indicated a preference to have the latrine as close as possible to the house. In the four other sites, the preference was to place the latrine at a good distance (over 25 varas 1/ ) from the dwelling (see Table 4.6.1-0).

In the indigenous area the preference for closeness is important to assure that the latrine gets used both day and night. In Los Andes, Teculután, Izabal, and Patulul, the preference is for latrines to be at least 25 varas from the house, yet the data indicate that in actual practice they are closer. This may indicate that location may have been arbitrarily selected without reference to local preference. Furthermore, the level of satisfaction with the latrine may prove to be closely related to location, as well as to the type of latrine in actual use.

---

1/ One vara is approximately equal to a yard.

TABLE 4.6.1-0
AVERAGE DISTANCE IN VARAS TO LATRINE

| | Average Estimated Distance | Attitude Concerning Dist. |
|---|---|---|
| Soloma (cabecera) /I | 15-20 varas | too far |
| Soloma (aldea) /I | 35 varas | too far |
| Finca Los Andes /I | 20 varas | satisfied |
| Teculután /L | 10 varas | too close |
| Izabal /L | 15 varas | too close |
| Patulul /L | 10 varas | too close |

Households Without Latrine

In the households without latrines or which do not share with neighbors, there is no differential across the total sample with regard to the site presently used to defecate. The data do, however, show an age differential. Adults generally defecate in the same generalized area, at a considerable distance (when possible) from the house, with marked preference for hidden spots in open countryside or in far corners of a milpa. Younger children (under 10), however, defecate randomly near the dwelling, often on the edges of open patios. Before entering communities with no or few latrines, with a latrinization program, a simple survey of site preferences for latrine location would seem advisable.

Communication

In all six sites, 50% or more of the respondents had never heard, read, or seen any programs dealing with sickness, origin of disease, or the prevention of disease. An average of 65-70% of those interviewed had never received any information from either rural health promoters or other auxiliaries.

The sites with the least exposure to media and promotion personnel were Soloma (aldea and cabecera) and Los Andes; Teculutan, Izabal, and Patulul had had, on the average, 10-15% more contact with both media and outreach personnel. Let it be emphatically stated that over 50% of all respondents stated that they had received no information, even when they were located in

areas where programs disseminated by mass media, especially radio, exist. These sites are also located in areas where programs by rural health promoters and auxiliaries are also being carried out.

Of the subjects who had received information, an average of 71% say they have utilized what they learned in actual household practice. They also felt that the quality of information had been good.

85% of the subject population, at all sites, expressed interest and desire to receive information in the form of courses by trained personnel, especially in the field of environmental sanitation.

As indicated earlier, the purpose of the household interviews had been stated at the outset and it would not be surprinsing if some of the response reflect a desire to please the interviewers.

General Anthropological Recommendations

Based on the general observations made while administering the survey, and on the survey responses themselves, the following general recommendation are made with respect to an environmental sanitation program:

Recommendation 1. That a simple community survey precede any intervention in any community targeted for an environmental sanitation program.

Project budgets whould include money for a small survey, a leadership interview, and some observations. This can be done in a person-week.

Recommendation 2. That the community be thoroughly involved from the beginning in project identification, design, and implementation.

Recommendation 3. That education programs be predicated on the fact that people would like to be clean and when appropriate on the belief in the indigenous conceptual views of reality.

Recommendation 4. That water intervention in the rural areas incorporate amortization of initial costs over some specific time period.

Recommendation 5. That shared latrines in communities not be continued as a solution.

Recommendation 6. That other low-priced alternative comode designs, that are culturally acceptable, be investigated for use in various areas of the country. Three possible alternative designs that are candidates for further study are: Columbian glazed comode, squat-type with water siphon, and current slab without the riser.

Recommendation 7. That different types of technological intervention in solid waste disposal be considered for indigenous and ladino areas based on culturally acceptable practices.

Environmental Sanitation Manpower Issues. The MOH Division of Environmental Sanitation works through 150 sanitary inspectors located in 150 Health Centers and a growing corps of TSRs assigned to health posts.

The sanitary inspectors could, and should, form an important link in the decentralized activities of the MOH in the environmental sanitation, water supply, excreta disposal, food handling, solid waste disposal and rabies. However, indications are that the sanitary inspectors need extensive training if they are to fulfill the role expected of them. They are not trained as sanitary inspectors and the Division estimates that as many as 50% of them are unprepared to handle the responsibilities they are given.

The MOH is currently conducting a nine-month course to upgrade the sanitary inspectors but only 30 to 40 of the 150 sanitary inspectors are able to participate in the course each year. A method must be devised to hasten this process. If an extra 30 sanitary inspectors could be added to the staff and trained each year, they could be assigned to the Food Control Division, the Latrine Division.

In addition to providing them with the necessary training, the corps of sanitary inspectors must be strengthened by selecting candidates who can qualify for the duties they must perform.

In the area of water system development, additional personnel are needed to implement the expanded rural water supply program requirements to meet the National Health Plan. Alternative for identifying the precise type of personnel needed will depend upon:

(a) method selected by the MOH to expand coverage,

(b) degree of responsibility for system maintenance assumed by the private sector.

### 4.6.2 Expanding Rural Domestic Water Availability

#### 1. Background

Water is central to all life in Guatemala as in all other countries of this world. Because daily life functions are impossible without water, it is fair to say that all persons have access to a water source, e.g., stream, river,spring, etc. The problem to be addressed in this chapter is that frequently these water sources are usually of such poor quality or are so remote from the dwelling that they do not have a significant effect on improving health. It is assumed that by making water more accessible to the dwelling by piping it or digging a well or other similar methods that the incidence and prevalence of diarrheal and other health problems related to the lack of sufficient water will be reduced.

In 1976, only 14% (approximately 540 thousand persons) of the rural Guatemalan population had access to a system constructed to improve the availability of water. The majority of the remaining 3,400,000 rural inhabitants need such systems because of the prevalence of illnesses that results from poor access to water.

A variety of public and private agencies, organizations, and institutions currently have programs to construct rural water systems. These various groups represent a broad spectrum of organization approach to the problem and each approach has a different cost.

The major public programs are discussed in the following part of this chapter. Each program should be viewed from the aspect of institutional and financial applicability, costs to GOG and the local community, the capacity of the program to reach planned objectives, and the capacity to maintain the system once constructed.

The major public water programs are:

1. Environmental Sanitation Division (DSA) is within the MOH and develops systems in small communities of various sizes. However, after the 1976 earthquake, DSA had a UNICEF program to rehabilitate water systems throughout the area affected by the quake.

2. Rural Aqueducts Program Office (UNEPAR) is the principal office within the MOH responsible for development of water systems in communities of from 200 to 2,000 persons. Systems are virtually all gravity systems, but a few have

motorized pumps. In addition to installing systems, UNEPAR has the responsibility for maintenance of systems installed by other public agencies.

Throughout this part, UNEPAR is referred to as a separate unit. This is not an accurate portrayal. Until 1976, UNEPAR was part of DSA. However, data on systems installed and expenditures were separated as of 1970.

3. Community Development Office (DDC) is within the office of the President of the Republic and develops gravity systems in much the same way and scale as does DSA.

4. INFOM is the principal financial agent for water systems in municipal and department capitals. It is different from the other three in that its activities are exclusively directed to these centers which by definition are urban areas.

While these are the major public programs, there are a number of water systems that have been installed throughout the country by the HPVOs. The exact number of HPVO water systems is unknown.

Given this background, each of the three public agencies is discussed in detail.

## 2. Major Public Agencies Developing Rural Water Systems

### a. Unidad Ejecutora del Programa de Acueductos Rurales (UNEPAR)

Unidad Ejecutora del Programa de Acueductos Rurales (UNEPAR) was established in May 1976 within the MOH to undertake the design, construction, operation and maintenance of rural water supply systems for communities ranging from 200 to 2,000 inhabitants. The Departamento de Ingeniería Sanitaria within the Division of Saneamiento Ambiental (DSA), also a part of the MOH, formerly had these responsibilities.

UNEPAR functions through a national level organization and three regional offices: the Central Regional Office in Guatemala City, the Western Regional Office recently established in Quezaltenango and the Eastern Regional Office about to be set up in Chiquimula.

UNEPAR has direct responsibility for implementing the rural water supply program financed by a $7 million loan from the

Inter-American Development Bank (IDB) and $2.6 million in national counterpart funds. The loan, approved by the GOG Congress on October 5, 1976, covers the design and construction within a four-year period of 105 systems for 135,000 inhabitants in approximately 165 communities with populations between 200 and 2,000. Of the 105 systems, 80 will be constructed in villages with populations over 400. Only 25 systems will be built in villages with fewer than 400 inhabitants.

The people benefited by the program participate minimally in the projects. A local Water Committee is established to obtain permits for rights of way, for the land on which storage tanks and public hydrants are to be installed and for using the water source. UNEPAR operates separately from the other MOH activities and makes no use of the Ministry's close contact with the community through the sanitary inspector or TSR. Local labor is not used because UNEPAR feels that it slows down the construction process, usually carried out by contract, which must proceed according to a predetermined construction schedule under the IDB financing arrangements.

Efforts focus on installation of house connections; public hydrants are held to a minimum. A flat rate, charged for water received through house connections and for the use of public hydrants, is sent to the Regional Office for deposit in the National Treasury. Funds for operation and maintenance are then budgeted annually as part of the UNEPAR budget.

In order to provide water service to as many people as possible with the funds available (estimated at $70/capita), the majority of the systems in the UNEPAR program will be gravity systems; however,eventually the program will have to include pumped systems using ground water sources.

The Canadian International Development Agency (CIDA) has agreed to assist UNEPAR with a $1.8 million grant to: (a) study possible water sources, including the ground-water potential; (b) develop a national rural water supply plan for the next decade; and (c) train people in hydrology and the development of ground-water resources, and in the planning, operation and maintenance of rural water supply systems.

Pending formal congressional approval UNEPAR also has a $3.5 million loan from CIDA to finance the rebuilding of some 100 systems destroyed or damaged by the recent earthquake.

b. Division de Saneamiento Ambiental (DSA)

When UNEPAR was established the Department of Sanitary Engineering within DSA was practically eliminated, and DSA was left with a Department of General Sanitation and a Department of Food Control. Currently, the DSA is responsible for a national latrine program, a water supply program for small communities, an emergency program with UNICEF to rehabilitate small water supply systems and latrines in the earthquake area and the CARE/MOH program being carried out in El Quiché. These programs are conducted with full community participation in close coordination with the TGRs and the local program provided through the Ministry of Health.

The following data indicate the size of the projects included in the DSA small-system program, the degree of local participation and the per capita cost. All information is for 1975.

| | | |
|---|---|---|
| Number of systems reported | | 15 |
| Number of people served | | 3,176 |
| System size, maximum-minimum population | | 360-70 |
| Average system size, population | | 212 |
| Per capita cost, maximum-minimum | | $49-$7 |
| Average per capita cost | | $18.80 |
| Source of funds: | | |
| Community | | 53% |
| Funds | 21% | |
| Labor | 32% | |
| DSA Funds | | 26% |
| Other funds | | 21% |

Thus, more than 50% of the cost, either in cash (21%) or labor (32%), is contributed by the people who receive the services.

Most water supply systems built under DSA programs are gravity-supplied. Except for the systems installed under the CARE/MOH demonstration project in El Quiche, water service generally is provided at no charge through public hydrants. When sufficient water is available a few house connections are made, the householder pays the connection cost. A collection is made when there are minor costs, major repairs are handled with the assistance of the sanitary inspector assigned to the Centro de Salud,

The rural water supply and latrine program of DSA is augmented by a CARE/MOH 3-year program in El Quiché known as Saneamiento

Rural Quiché, which is to provide a water supply and latrine facilities to at least 25,000 people and to demonstrate techniques and methodology with widespread applicability to similar projects in other areas of Guatemala.

The program provides public faucets (house connections may be provided at the householder's expense) and latrines, a monthly 25-cent charge covers operation and maintenance costos of the water supply system. The efforts of CARE, DSA, local community improvement committees, and the TSRs and sanitary inspectors of the MOH are coordinated within the project.

To be included in the program, communities must meet the following criteria:

1. The water source must (a) be higher than the highest point in the community to allow for the use of a gravity flow system; (b) have capacity to accommodate the demand of the population projected for 20 years; (c) be less than 6 kilometers from the center of the population.

2. The community must organize a committee, with the assistance of the TSR, who will actively participate in the execution of the project and in the operation and maintenance of the facilities provided by the project.

The project is financed by the following agencies:

| | |
|---|---|
| AID (materials, equipment and personnel) | $250,000 |
| MOH (materials) | 350,000 |
| CARE (personnel and operations) | 47,304 |
| | $647,304* |

One project 1/ consisting of 27 house connections and 27 public hydrants to serve a population of 1,020 in two adjacent communities cost the following:

* Value of community participation contribution not included.

---

1/ Documentation of the CARE/Ministry of Health Potable Water and Latrine Project "CHIJTINIMIT", compiled by P. K. Buckles, October 1976.

| Source | | Expenditure | % of Total |
|---|---|---|---|
| DSA | | $ 2,643 | 22% |
| Materials | $2,395 | | |
| Latrines | 798 | | |
| Transportation | 450 | | |
| Local Skilled Labor | | 1,500 | 9% |
| Community Labor | | 8,034 | 49% |
| 5,770 man-days at $1.36 | 7,847 | | |
| Materials | 187 | | |
| CARE | | | |
| CARE | | 3,235 | 20% |
| Materials | 3,235 | | |
| | | 15,412* | |

* Does not include cost of technical personnel.

The total cost for this system represents a per capita cost of $15.11 the community supplied almost 50%.

A second supplement to the DSA rural water and excreta disposal programs is a cooperative UNICEF/MOH/PAHO basic sanitation program for rural areas devastated by the recent earthquake. The program provides for the rehabilitation of 63 water supply systems, the improvement of 50 wells and the installation of 20,000 latrines during a one-year period starting April 1977.

The following funding is provides:

| Source | Expenditure | % of Total |
|---|---|---|
| UNICEF | $575,000 | 53% |
| OPS/OMS (PAHO/WHO) | 60,000 | 6 |
| PMA | 50,000 | 5 |
| MOH | 224,800 | 21 |
| Community | 161,600 | 15 |
| | $1,071,400 | 100% |

Additionally, the World Food Program is contributing food valued at $50,000 to be provided the workers who labor in the program.

c. Dirección de Desarrollo de la Comunidad (DDC)

The Dirección de Desarrollo de la Comunidad, a dependency of the Presidency of the Republic of Guatemala, includes among its disparate activities a program for providing water supply and excreta disposal facilities for rural populations. This program is carried out with CARE financing through two Regional Centers in Chimaltenango and in Jalapa, and 25 local centers. The water supply activities are the responsibility of the civil engineers in the Regional Centers and of the social workers in the Local Centers.

There is some coordination between DDC and DSA in their rural water supply and latrine programs and their approaches are similar in that each encourages community participation. Local committees are organized which become responsible for operation and maintenance when the systems are completed. No charge is made for the water services which are generally provided through public hydrants. Most systems are supplied by gravity.

During the last 7 years, DDC constructed 84 water systems for 89,500 people with the following pattern of financing:

| Source | Expenditure | % of Total |
|---|---|---|
| DDC | 275,751 | 40% |
| Municipal | 25,637 | 4 |
| Community | 118,371 | 17 |
| International Organizations | 270,629 | 39 |
| | 690,388 | 100% |

The percapita cost over the seven year period is $7.71.

3. Progress since 1970 in Providing Rural Water Supply Services

Statistics indicate that while the percentage of the total population which is rural is expected to decrease (from 67% in 1970 to 60% in 1980), the absolute rural population of Guatemala increased from 3.54 million in 1970 to 3.89 million in 1975 and is expected to reach 4.23 million in 1980.

During the past seven years there has been a small percentage gain from 11% in 1970 to 14% in 1976 of the rural population with water supply services, an increase of 152,300 people (Figure 4.6-I: Population Growth 1970-1985 Rural Population with Water Supply Services 1973-1980).

According to statistics furnished by UNEPAR, DAS and DDC a total of 235,117 rural people have benefited by water supply systems installed during the years 1970-1976.

| | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| UNEPAR | 38,071 | 19,930 | 3,418 | 13,716 | 16,353 | 27,992 | 9,347 | 128,827 |
| DSA | | 1,392 | | 2,277 | 4,335 | 4,387 | 4,423 | 16,814 |
| DDC | 18,957 | 19,086 | 11,222 | 9,910 | 10,275 | 5,349 | 14,677 | 89,476 |
| TOTAL BENEFI-CIARIES | 57,028 | 40,408 | 14,640 | 25,903 | 30,963 | 37,728 | 28,447* | 235,117 |

* Includes the rehabilitation of systems damaged by the 1976 earthquake.

FIGURE 4.6-I

POPULATION GROWTH, 1970-1985
AND
RURAL POPULATION WITH WATER SUPPLY SERVICES, 1973-1980

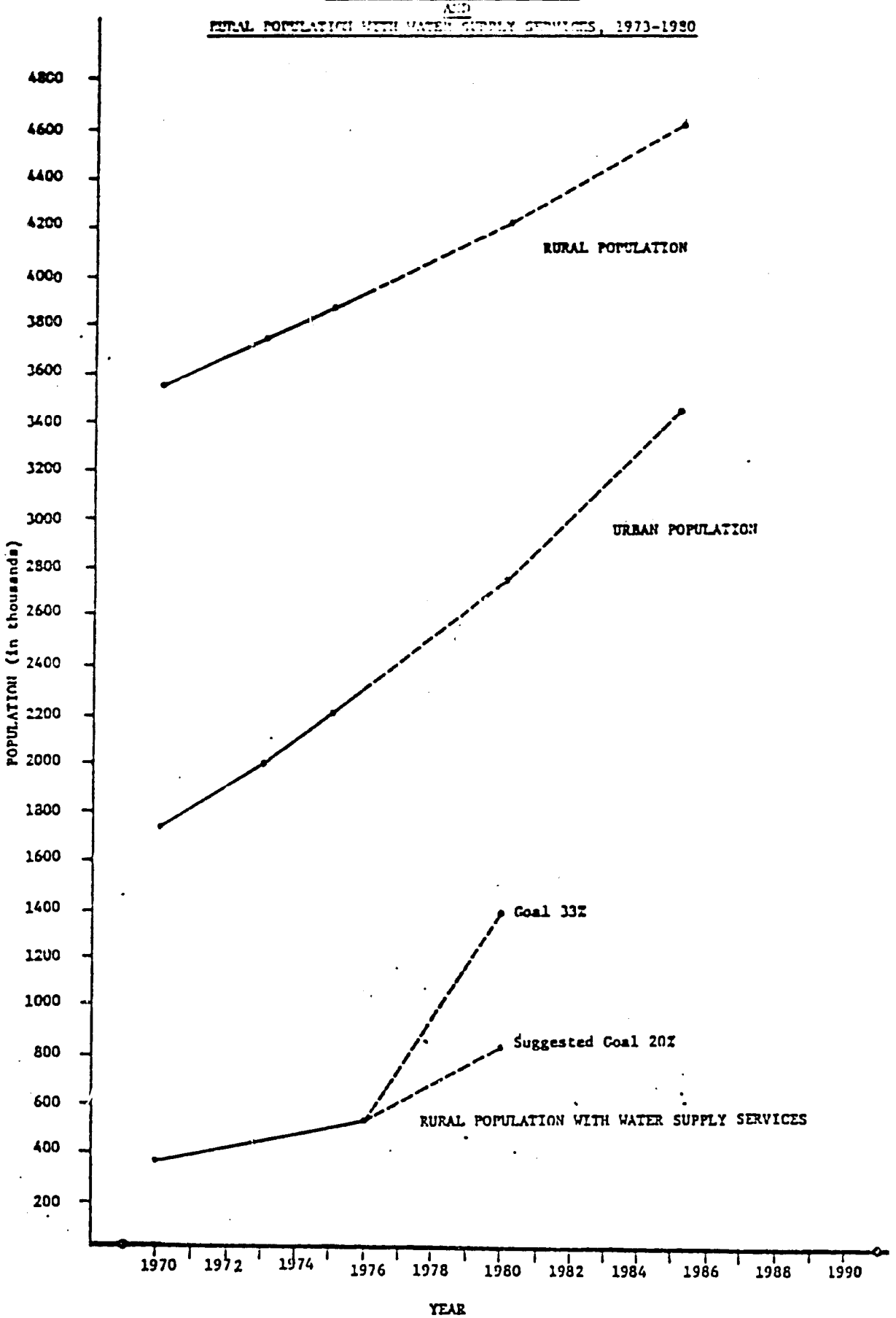


TABLE 4.6-I

COMPARISON OF POPULATION DENSITY 1973 AND PERCENTAGE OF RURAL POPULATION WITH WATER SUPPLY SERVICE 1976

| | Population Density 1973 (People/Km2). | Percent of Rural Population Benefited by Water Supply |
|---|---|---|
| Guatemala | 381 | 29 |
| Sacatepéquez | 174 | 47 |
| Quetzaltenango | 139 | 27 |
| Totonicapán | 134 | 17 |
| Sololá | 102 | 33 |
| Chimaltenango | 82 | 25 |
| Suchitepéquez | 74 | 8 |
| Chiquimula | 63 | 11 |
| Retalhuleu | 63 | 3 |
| Escuintla | 62 | 7 |
| Jutiapa | 61 | 20 |
| Santa Rosa | 53 | 16 |
| Jalapa | 48 | 5 |
| San Marcos | 39 | 12 |
| Huehuetenango | 39 | 13 |
| Zacapa | 36 | 23 |
| El Progreso | 34 | 23 |
| Baja Verapaz | 31 | 7 |
| Alta Verapaz | 30 | 5 |
| El Quiché | 30 | 5 |
| Izabal | 13 | 15. |
| Petén | 1 | - |

TABLE 4.6-I

COMPARISON OF POPULATION DENSITY 1973 AND PERCENTAGE OF RURAL POPULATION WITH WATER SUPPLY SERVICE 1976

| | Population Density 1973 (People/Km2). | Percent of Rural Population Benefited by Water Supply |
|---|---|---|
| Guatemala | 381 | 29 |
| Sacatepéquez | 174 | 47 |
| Quetzaltenango | 139 | 27 |
| Totonicapán | 134 | 17 |
| Sololá | 102 | 33 |
| Chimaltenango | 82 | 25 |
| Suchitepéquez | 74 | 8 |
| Chiquimula | 63 | 11 |
| Retalhuleu | 63 | 3 |
| Escuintla | 62 | 7 |
| Jutiapa | 61 | 20 |
| Santa Rosa | 53 | 16 |
| Jalapa | 48 | 5 |
| San Marcos | 39 | 12 |
| Huehuetenango | 39 | 13 |
| Zacapa | 36 | 23 |
| El Progreso | 34 | 23 |
| Baja Verapaz | 31 | 7 |
| Alta Verapaz | 30 | 5 |
| El Quiché | 30 | 5 |
| Izabal | 13 | 15. |
| Petén | 1 | - |

MAP 4.6-I

PERCENT OF RURAL POPULATION WITH WATER SUPPLY SERVICE, 1976

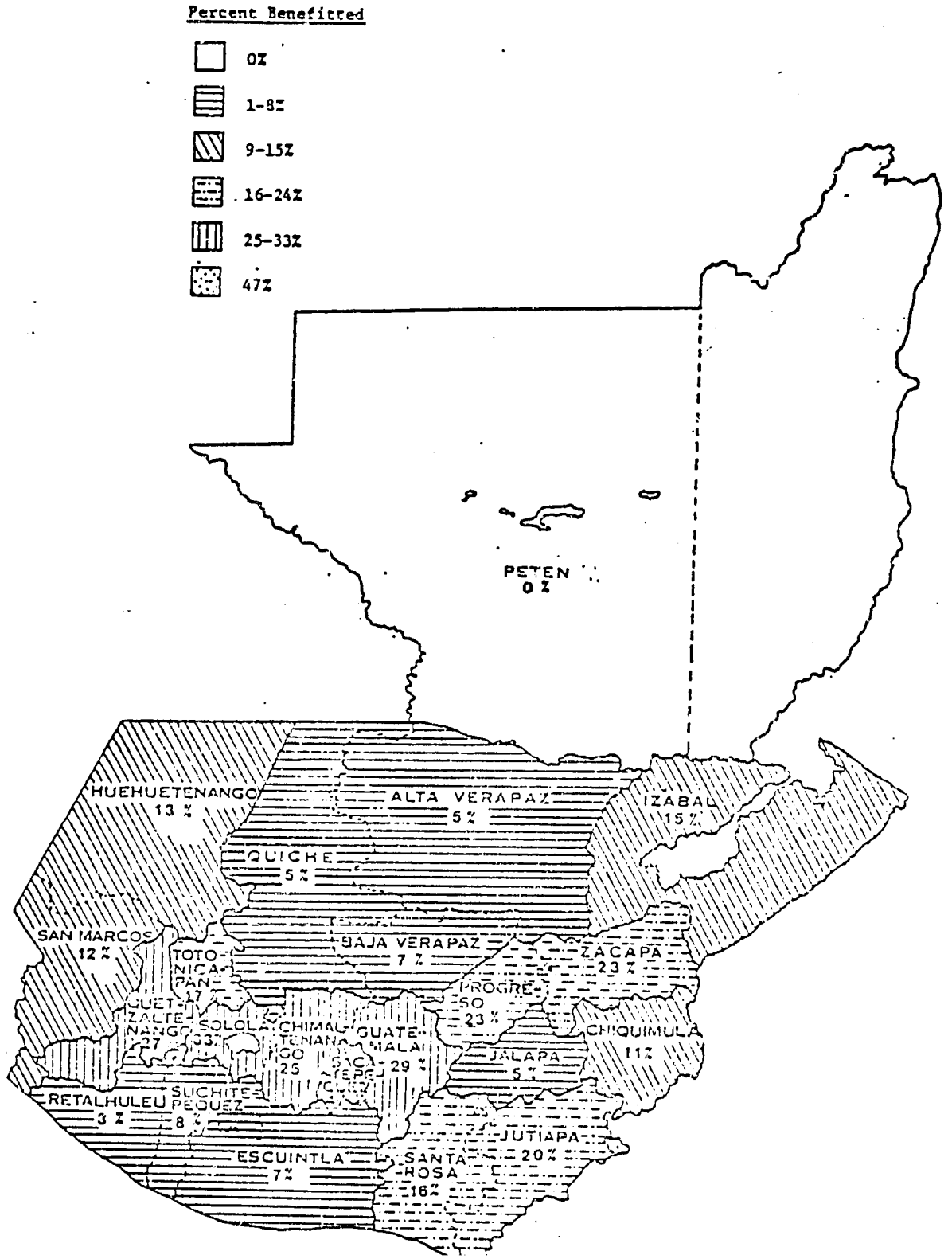


TABLE 4.6-II

INVESTMENT* IN RURAL AQUEDUCTS BY INSTITUTION

| | UNEPAR (formerly Sanitary Engineering) | GENERAL SANITATION (Environmental Sanitation Division) | OFFICE OF COMMUNITY DEVELOPMENT | TOTAL |
|---|---|---|---|---|
| 1970 | $ 753,011 | $ 15,000 | $ 148,150 | $ 916,161 |
| 1971 | 508,146 | 15,049 | 82,355 | 605,550 |
| 1972 | 104,098 | 40,430 | 94,720 | 239,248 |
| 1973 | 362,255 | 19,963 | 93,808 | 476,026 |
| 1974 | 672,483 | 63,001 | 131,033 | 866,517 |
| 1975 | 1,723,174 | 53,740 | 78,424 | 1,855,338 |
| 1976 | 549,715 | 282,512 | 93,455 | 925,682 |
| TOTAL | $ 4,672,882 | $ 489,695 | $ 721,945 | $5,884,522 |

* Amounts are from the executed budget.

The average of 33,600 people benefited per year, during this 7-year period. (See Table 4.6-I and Map 4.6-I for distribution rural population with water.)

An estimate of the capital funding for construction of rural water supply systems provided by UNEPAR, DSA and DDC during the period 1970-1976 is tabulated in Table 4.6-II and shown graphically in Figure 4.6-II.

4. Other Rural Water Development Issues

Two other issues are important in the development of water systems in rural Guatemala. The first is the possibility of a shallow well program as an alternative to gravity system and second is long-term maintenance of systems.

Shallow Well Possibilities

At present, rural water supply programs in Guatemala focus almost exclusively on gravity-flow systems, a constraint which limits the communities which are able to participate in the current programs. For example, in the CARE/MOH program in El Quiché, this constraint eliminated approximately 100 of the 200 sites initially considered.

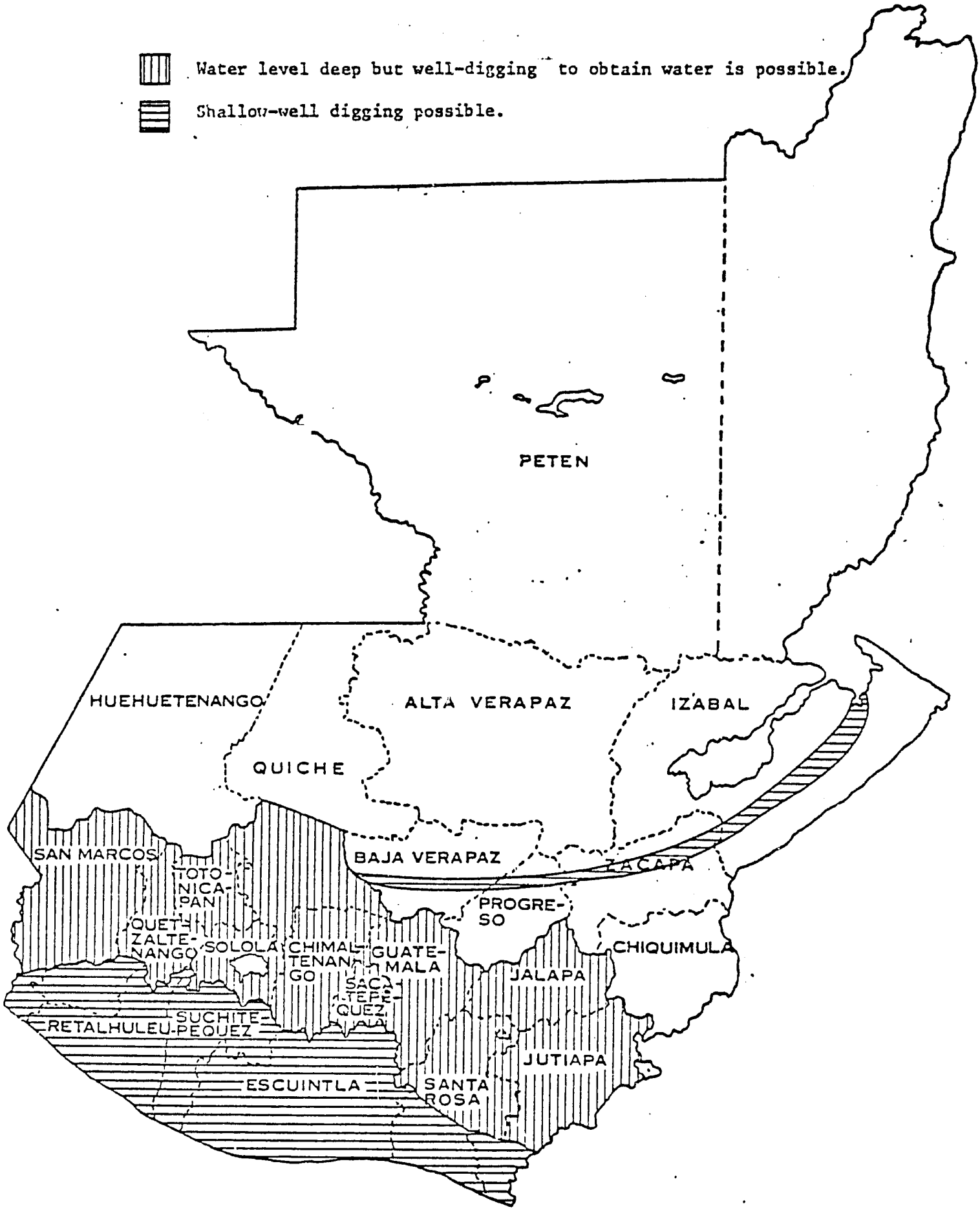
In many regions of the country, unsuited to gravity-flow systems, hand-dug shallow wells with hand pumps could improve the quality and convenience of the water supply for many people. The Instituto Geográfico Nacional (IGN) has identified several areas of the country where such a program might effectively solve the water supply requirements of the areas. See Map 4.6-II. While gravity-flow systems are more economical to build, operate and maintain than hand-pumped systems, needs must be balanced with economic factors when national rural water supply plans are developed to meet the goal of the National Health Plan.

Further investigation into a shallow well program is proposed which would emphasize the installation of shallow hand-dug wells and hand pumps to provide a water supply for 200 small communities. First, a more definitive estimate must be made as to the potential number of beneficiaries that may be served and that are not now served by gravity systems, and the potential beneficiaries' relative level of poverty.

Once the number of potential beneficiaries who may benefit from a shallow well program is established, then a financial feasibility study should be conducted to determine costs in both the

MAP 4.6-II

AREAS APPROPRIATE FOR SHALLOW-WELL PROGRAMS



short and long terms. Only after both the magnitude of the need is known, the potential costs have been estimated, and the targeting assessed, should an investment be undertaken.

Water Supply Maintenance

Another area of some concern is maintenance capability for water supply systems. At the present time no formal maintenance support is provided by the agencies, other than UNEPAR, who designs and constructs water supply systems. Supervision from one level to the next lower level is weak in most agencies. Water systems are turned over to the local Water Committees for operation and maintenance. When breakdowns occur which are beyond the local capacity for repairs, assistance is sought from the sanitary inspector at the health center, for DSA-installed systems, or from the civil engineer at the regional center level, for DDC-installed systems. Thus, many systems are out of operation for long periods of time because of lack of adequate maintenance support.

There are a variety of alternative solutions to this problem. First is the current centralized UNEPAR system. The problem is that UNEPAR is presently understaffed and the problem will grow worse as it expands its program. A second alternative is an extensive decentralized UNEPAR organization for operation and maintenance which will require new regional offices and the training of additional technical, administrative and supervisory staff. More maintenance crews will be needed, especially as the proportion of pumped systems increases, as well as additional regional warehouses and warehousemen.

A third alternative is contracting with private contractors. For such a system to work and be responsive to repair requests, contractors would have to be found throughout the country and not just in Guatemala City.

A fourth alternative would be to use sanitary inspectors and TSRs to do some low-level maintenance. More importantly, they could teach the local water committee to do regular system maintenance.

5. Comparison of the Situation with GOG Plan Objectives

It is a goal of the National Health Plan, 1975-1979, to provide water supply services for 33% of the rural population by the end of 1979. This will require the construction of water supply systems to serve approximately 890,000 people during the

period 1975-1979, or 178,000 people per year for each of five years, over 5 times the average number of people per year provided with water supply services during the 1970-1976 period.

The UNEPAR program plans to provide water to 135,000 people during the next four years. A shallow well program proposed in this report, if approved might be able to provide a water supply for 100,000 rural people. The DDC program, if continued at 1976 level, could provide a water supply for an additional 60,000 people in 4 years. If, in fact, these additional 295,000 people in rural areas are provided with water services then about 20% of the rural population will have water supply services by 1980. Although this is short of the goal established by the National Health Plan, even this will be an appreciable 56% increase over the population with water services in 1976.

In addition to providing the new services mentioned above, UNEPAR is cooperating with CIDA in rebuilding 250 systems damaged by the earthquake and DSA is working with UNICEF to rehabilitate 63 water supply systems and improve 50 wells.

## RECOMMENDATIONS FOR EXPANDING DOMESTIC WATER AVAILABILITY

Recommendation 1: THE GOG SHOULD REVIEW THE VARIETY OF ORGANIZATIONS NOW ENGAGED IN PROVIDING WATER SYSTEMS TO RURAL AREAS IN GUATEMALA WITH A VIEW TO CONSOLIDATING THE FUNCTIONS OF SEVERAL AGENCIES INTO ONE OR TWO THAT WILL HAVE IMPROVED CAPABILITIES TO DESIGN, IMPLEMENT, AND PROVIDE MAINTENANCE SUPPORT FOR AN INCREASED NUMBER OF SYSTEMS.

The dispersion of effort among INFOM, UNEPAR, DSA, DDC, and other agencies developing water systems, e.g., Obras Públicas, FYDEP, Ministry of Defense civic action units, HPVOs, etc., leads to competition for manpower and difficulties of coordination which inhibit the flow of increased investment resources into water system construction.

Recommendation 2: IN ORDER TO MEET THE NATIONAL PLAN OBJECTIVES, THE GOG SHOULD INVESTIGATE VARIOUS ALTERNATIVE METHODS TO GRAVITY SYSTEM SUCH AS RESERVOIRS, SHALLOW WELLS, ETC.. SUCH ALTERNATIVES SHOULD MAKE MAXIMUM USE OF INTERMEDIATE LEVEL TECHNOLOGICAL AND HYDRAULIC CONDITIONS.

Recommendation 3: ALL WATER DEVELOPMENT PROJECTS SHOULD HAVE A HIGH LEVEL OF COMMUNITY PARTICIPATION FROM THE INITIAL DESIGN THROUGH TO THE ONGOING MAINTENANCE REQUIREMENTS.

Recommendation 4: A PLANNED PROGRAM OF PREVENTIVE MAINTENANCE FOR RURAL WATER SYSTEMS SHOULD BE ESTABLISHED WITHIN THE DECENTRALIZED MOH SYSTEM, USING THE HEALTH INSPECTORS AND TSRs.

### 4.6.3 Excreta Disposal

Goals for Latrines. The present goal of the National Health Plan is that 50% of the rural population will be served by some means of sanitary excreta disposal (sanitary latrines) by 1981. To meet this goal will require that 2.17 million people will have such services within the next five years. It is estimated that 500,000 people living in rural areas had latrines in 1976, therefore, services will be needed for an additional 1.66 million people. This will require an increase in the current level of production by an average of 63,000 units per year; more than four times the present latrine production destined for use in rural areas.

Three plants within the DSA latrine sub-section, currently produce the slabs and risers used in Guatemala: the plant in Amatitlán has been making slabs and risers for many years and two smaller plants, one each in Jutiapa and Zacapa, have just recently been established. UNICEF has estimated that these three plants could produce 36,000 latrines per year. Of these, 23,400 would be for use in rural areas, leaving an annual shortage of 39,600. To produce the additional slabs and risers needed five additional units the size of Jutiapa's will be required, as well as a slight increase in production in Amatitlán, assuming all additional production would be for use in rural areas.

This places a difficult strain on the DSA latrine program. Given these problems there are four alternative solutions. First, increase productivity throughout the country including increases in needed budgetary support to meet projected goals. Second, reduce the goal from 50% coverage to 40% coverage which would require additional support but only for three new production sites instead of the five required to meet the 50% goal. Third, continue at the current level which will result in a shortage of about 36,000 units per year. Fourth, in order to reduce the cost and production time per unit, a possible alternative is to distribute the slab without the riser in those areas where a squat-type latrine is culturally acceptable.

Expanding the Installation and Use of Sanitary Latrines. Several agencies are running isolated programs, all dependent on the production of the latrine slabs and risers by the three DSA plants but without consideration of the production capacity of the plants. UNICEF is planning on installing 15,000 latrines from April through December 1977. Based on 1976 figures the regular on-going latrine programs of the DSA will require about 8,000 latrines. DDC has a program proposing the installation of 30,000 in a year; it can be assumed that half of these latrines will be installed or at least need to be manufactured during the remainder of 1977. The potential demand for latrines by these three goups during a one-year period is 30,000 latrines. Production of the three plants which produce slabs and risers reached 23,500 in 1976. This is to say that anticipated placement will exceed supply by 6,500 units.

The existing organization is inadequate to administer and operate efficiently the present latrine production and distribution program. Production in the Amatitlán plant is well managed and the product well made. The Zacapa plant was not visited but is reported to be well run. However, in the Jutiapa plant the slabs and risers are poorly made, the percent of breakage is very high, and lack of supervision is evident.

It is also reported that funds allocated for the construction of latrines have been diverted to other programs in the past. Regular and efficient production cannot be maintained when cement, sand, reinforcing steel and wood for the latrine tops are not available when needed. Any diversion of funds or difficulty in financing transportation undoubtedly slows the distribution and installation of sanitary latrines.

Effective latrine programs are intimately connected with other elements of the health sector since the correct use of latrines helps destroy the chain of infection caused by the unsanitary disposition of human excreta. It is well documented in studies from other countries that a coordinated program of potable water and sanitary waste disposal greatly enhances the health benefits of potable water alone. Every effort to complement the MOH/UNEPAR aqueduct program with latrine installations should therefore be pursued.

EXCRETA DISPOSAL RECOMMENDATIONS

Recommendation 1: FROM THE EXISTING OPTIONS, THE GOAL OF THE NATIONAL HEALTH PLAN TO PROVIDE 50% OF THE RURAL POPULATION WITH SANITARY EXCRETA DISPOSAL FACILITIES BY 1981, SHOULD BE AMENDED TO PROVIDE 40% OF THE RURAL POPULATION WITH SANITARY EXCRETA DISPOSAL FACILITIES BY 1981.

Recommendation 2: THE CAPACITY OF THE DIVISION DE SANEAMIENTO AMBIENTAL (DSA) TO PRODUCE, DISTRIBUTE AND COORDINATE THE INSTALLATION OF LATRINE SLABS, RISERS AND COVERS SHOULD BE STRENGTHENED AND INCORPORATED INTO A COMPREHENSIVE LATRINE PROGRAM TO MEET THE REVISED GOAL OF THE NATIONAL HEALTH PLAN RECOMMENDED ABOVE.

Recommendation 3: THAT LATRINES WITHOUT RISERS BE MADE FOR INSTALLATION IN AREAS WHERE THEY ARE MORE CULTURALLY ACCEPTABLE THAN LATRINES WITH RISERS.

### 4.6.4 An Analysis of Solid Waste Disposal Practices

In the next few years the problems caused by solid waste will increase. With the population increasing annually at a rate of 3.1% and with per capita generation of solid waste increasing as the country develops, the total daily volume of wastes can be expected to double within the next ten years. If attention is not given to the problem its detrimental effects will increase exponentially.

Guatemala City

Solid waste management in Guatemala City has been thoroughly studied by Black & Veatch International Consulting Engineers 1/ who pointed out a number of problem areas.

---

1/ Black & Veatch Internation Consulting Engineers, Estudio del Plan de Recolección y Tratamiento Final de Desechos Sólidos. Guatemala, January 1976.

Responsibility for solid waste in Guatemla City is vested in the municipal División de Limpieza Pública which sweeps the streets, removes waste from the public markets, and operates the disposal site. Service is not provided uniformly; parts of Guatemala City are served free of charge by municipal vehicles while the remainder is served by private collectors for a monthly charge.

There is virtually no data concerning the volume and nature of the solid wastes generated, and there is no control of storage facilities. The disposal site is suitable but not operated correctly; wastes are dumped in various parts of the landfill, there are uncontrolled fires, and about 200 scavengers, whose health and safety is in constant danger, who eke out a living from the waste.

Intermediate Cities

Although the intermediate cities have problems similar to those of Guatemala City, resources are scarcer and there is less concern about the problem.

The municipality usually collects street sweepings and waste generated by the public markets and public institutions, using generally insufficient equipment; domestic wastes are more commonly collected by private collectors whose routes often crisscross, resulting in much wasted effort. The disposal site, usually managed by the municipality, is the nearest river or low spot. Industries, required to dispose of their own wastes, deposit them at the most convenient place. One finds unofficial dumps all over the cities where garbage is burned with little if any control, causing air pollution, creating obnoxious odors, and unsightly environmental hazards.

There is, undoubtedly, a need to educate both the population and the municipal authorities of these intermediate size cities regarding sanitary disposal of solid wastes.

Small Villages and Rural Areas

There is a smaller per capita generation of wastes in small villages and rural areas which makes the problem less severe than in larger cities. Nevertheless, people take what wastes they have to convenient places to burn them, or dump them into rivers and streams used for domestic purposes. Without adequate solid waste disposal education, problems in rural areas will become more severe and difficult to resolve at some later time.

SOLID WASTE RECOMMENDATIONS

Recommendation 1: THE MUNICIPALITY OF GUATEMALA CITY SHOULD SUPPORT THE RECOMMENDATIONS MADE BY BLACK AND VEATCH INTERNATIONAL CONSULTING ENGINEERS:

a. That clear municipal rules and regulations be established for the storage, collection, and disposal of solid wastes, with approval of the MOH Environmental Health Division.

b. That a short-term and long-term plan be established for solid waste activities.

c. That the present dump be operated as an actual sanitary landfill.

d. That administrative changes be established within the "División de Limpieza" to streamline its activities.

e. That metal bulk containers be placed in strategic places throughout the city.

f. That rules be established concerning storage of solid waste at homes which will apply immediately to all new construction.

g. That all hospitals be required to incinerate their wastes on site.

h. That new equipment be purchased as specified in the Black and Veatch report reference above.

i. That scavenging of materials at the landfill site be regulated.

Recommendation 2: A FORMAL PROGRAM SHOULD BE ESTABLISHED WHEREBY ALL INTERMEDIATE CITIES ARE SURVEYED BY THE LOCAL SANITARY INSPECTOR TO EDUCATE AND COORDINATE LOCAL MUNICIPAL AUTHORITIES.

Recommendation 3: SOLID WASTE DISPOSAL IN SMALL VILLAGES AND RURAL AREAS SHOULD BE IMPROVED THROUGH: 1) COMMUNITY EDUCATION IN SIMPLE NON-SOPHISTICATED DISPOSAL METHODS; 2) INCORPORATION OF EXISTING PRIVATE COLLECTORS INTO THE SCHEME; AND 3) THE USE OF SANITARY INSPECTORS AND APPROPRIATELY TRAINED TSRs TO PROMOTE AWARENESS OF THE PROBLEM AND FOLLOW-UP ON RECOMMENDED SOLUTIONS.

Recommendation 4: THE SANITARY INSPECTORS SHOULD BE GIVEN EXTENSIVE TRAINING SO THAT THEY MAY ADEQUATELY FULFILL THEIR ROLE IN ENVIRONMENTAL SANITATION.

### 4.6.5 Community Market Sanitation Practices

The markets, slaughterhouses and other public places where food is handled are notorious as epicenters for the spread of diseases as a result of their unsanitary conditions. Although no Guatemala specific epidemiologic data are available to describe the spread of disease through community markets, there is substantial evidence from other developing countries with similar markets to conclude that the markets constitute a substantial public health problem.

A sanitary inspection and enforcement function exists within the Food Control Division of the Division of Sanitary Environment of the MOH, but its staff is limited and its area of action is confined almost exclusively to metropolitan Guatemala City. The limited control carried out in nearby cities does not extend to the rural areas. The sanitary inspector, responsible for these areas often is not prepared to carry out food control measures. By educating sanitary inspectors and food handlers in both methods and reasons for market sanitation a significant decrease in disease transmission can be realized.

COMMUNITY MARKET RECOMMENDATIONS

Recommendation 1: SANITARY CONDITIONS UNDER WHICH FOOD IS HANDLED SHOULD BE IMPROVED THROUGH EDUCATION OF THE SANITARY INSPECTORS AND SUBSEQUENTLY, OF THE FOOD HANDLERS.

Recommendation 2: THE MOH SHOULD MONITOR CONSTRUCTION PLANS AND OPERATION OF COMMUNITY MARKETS TO INSURE THAT FACILITIES ARE ADEQUATELY PRODUCED AND OPERATING NORMS ARE PROMULGATED AND ENFORCED.

## 4.7 Financing Health Care Services: A Financial Analysis of Public Expenditures on Health

### Problem Analysis

This chapter of the Health Sector Assessment presents and analyzes data on the current and historical pattern of public sector expenditures on health, as well as public expenditures planned over 1977 to 1980. Major emphasis is placed on the operations of the Ministry of Health (MOH). The objective is to determine to what extent the available fiscal and budget data support the findings of the Health Sector Assessment and what they reveal with respect to trends in the amount and composition of public health expenditures. The analysis which follows is oriented to the following questions:

1. Is there an upward trend in operating and investment expenditures on public health? What is the ratio between operating and investment expenditures and what has been the trend in this ratio over 1972-1977? How will the projections in the national development plan affect it?

2. What is the relative importance in the MOH operating budget of preventive versus curative measures? What has been the recent trend and what is the outlook for the future?

3. What can be said with respect to relative expenditures on the various types of personnel being employed and trained by the Ministry of Health? How adequate is the amount spent on training in relation to estimated requirements?

4. What is the trend in the relative importance of administrative expenses, training expenses, and expenditure on drugs in recent years?

5. What is the relative importance given to the Capital City as opposed to the rest of the country in the allocation of public funds for health?

6. To what extent does the analysis of trends in aggregate (and MOH) public health expenditures support the conclusions of the Health Sector Assessment? To what extent do expenditure plans suggest movement in the direction recommended by the Assessment?

7. Finally, what is the current state of MOH financial planning? In what areas is it particularly weak and what can be done to strengthen it?

The findings are tentative and preliminary. They are based on data collected under great time pressure by the Health Unit of the National Economic Planning Council which labors under serious shortages of personnel, data and data processing facilities. More reliable answers must await the development of a comprehensive health sector plan.

Public Investment Outlays on the Aggregate Health Sector: Trends and Projections

Trends in public expenditures (operating plus investment) on the aggregate health sector are shown in Table 4.7-A. The data in this table are not limited to the Ministry of Health, but cover all public expenditures on health, including those of the Guatemalan Social Security Institute (IGSS).

Data on operating expenditures for the aggregate public health sector are available through 1976 only. There are no official projections. Those that appear for 1977-1979 on line 2 are the author's.

Operating expenditures increased sharply between 1971 and 1976, from $35.3 million to $81.4 million, or at an average annual compound growth rate of 18.2% over this five year period; whole total investment expenditures increase even more dramatically, from only $2.8 million in 1971 to $14.9 million in 1976, or at an average annual compound rate of nearly 40%. Total public health expenditures (operating plus investment) increased from $38.0 million to $96.3 million, or at an average annual rate of 21%.

Of particular interest is the relationship between actual investment expenditures in any particular year and the increase in operating expenditures that took place between that year and the following., Thus, in Table 4.7-A investment expenditures on line 3 are related to the year-to-year increase in operating expenditures calculated on line 6. The annual increase in operating expenditures expressed as a percentage of investment expenditures effected in the previous year appears on line 7. This percentage drops from 153% in 1971 to a range of 30 to 36 percent over 1972-1974, then rises to 71% in 1975 and to 187% in 1976. This pattern suggests that, in terms of the investment criterion, the increase in operating expenditures that occurred between 1972 and 1975 was quite inadequate; however, this was at least partially made up by the substantial increase in operating outlays that took place in 1976. Unfortunately, there is no data for 1977. Over the period 1971-1976 taken as a whole, the increase in operating expenditures constituted only 67% of total investment.

## Table 4.7-A

Total Public Expenditures on the Aggregate Health Sector, 1971-76 with Projections for 1977-79

(In Thousands of Dollars)

| | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|---|
| Total | 38,047 | 46,417 | 58,164 | 62,732 | 70,555 | 96,301 | 119,916 1/ - 134,216 2/ | 127,281 1/ - 149,081 2/ | 130,220 1/ - 167,828 2/ | |
| Operating Expenditures | 35,292 | 39,514 | 42,004 | 46,884 | 58,121 | 81,401 | 93,016 3/ | 111,281 3/ | 123,428 3/ | |
| Investment Expenditures | 2,755 | 6,903 | 16,160 | 15,848 | 12,434 | 14,900 | 26,900 1/ - 41,200 2/ | 16,000 1/ - 37,800 2/ | 6,800 1/ - 44,400 2/ | 2,300 1/ - 50,400 2/ |
| By Central Government | 21,695 | 28,155 | 36,982 | 39,725 | 43,110 | 47,297 | | | | |
| By Autonomous Institutions | 16,352 | 18,262 | 21,182 | 23,008 | 27,445 | 49,004 | | | | |
| Year to Year Increase in Operating Expenditures | | 4,222 | 2,490 | 4,880 | 11,237 | 25,280 | 11,530 3/ | 18,266 3/ | 12,147 3/ | |
| Annual Increase in Operating Expenditures as % of Investment in Prior year 4/) | | 153 | 36 | 30 | 71 | 187. | | | | |

1/ Without reconstruction; 2/ With reconstruction

3/ Projected by writer on basis of regression analysis (increase in operating expenditures regressed as a function of prior year "normal" investment expenditures).

4/ It is assumed that investment of any year will entail additional operating expenditures only in the following year.

Source: For data through 1976 and projections of investments over 1977-79, Infrastructure Department of the National Planning Council. Projections of operating expenditures for 1977-79 by author.

The National Economic Planning Council has projected only investment expenditure for the aggregate health sector (not operating expenditures) over 1977-1980. These projections appear in line 3 of Table 4.7-A. For the years 1977-1980, the first figure shown refers to "normal" investment (which excludes earthquake reconstruction), while the second includes reconstruction. Total investment expenditures are scheduled to rise very sharply, from $15 million in 1976 to $50 million in 1980. Most of this increase is accounted for by reconstruction.

The proposed breakdown of aggregate public investment expenditures according to the Three-Year Investment Plan (1977-1979) of the National Economic Planning Council appears in Table 4.7-B. 1/ A major share has been allocated for hospital construction and reconstruction (45%). Rural Health services is second with 21%, and rural aqueducts third with 14%.

Since the National Economic Planning Council made no projection of operating expenditures for the aggregate public health sector over 1977-1979, how large would those operating expenditures have to be on the assumption that the increase in operating expenditures required between Year 1 and Year 2 is a function of the investment outlay made in Year 1? Through regression analysis the relation was established between investment and the annual increase in operating expenditures over 1971-1976, then projected for 1977-1979. The results appear on line 2 of Table 4.7-A. 2/

Analysis of the Ministry of Health Budget

The balance of this analysis focuses on the expenditures of the Ministry of Health which is by far the most important public institution providing health services to the poor. The

---

1/ Note that the investment targets in Table 4.7-B do not coincide exactly with the total shown in Table 4.7-A. The reason is that the figures in Table 4.7-A represent recently revised figures, while those in Table 4.7-B are from the unrevised Three-Year Plan. However, the total amount budgeted for investment over the 1977-1980 period as a whole is not substantially different in the two tables.

2/ Almost the same figures are obtained if one projects operating expenditures to increase over 1977-1979 at the same average annual compound growth rate as during 1971-1976.

Table 4.7-B

Breakdown of Aggregate Public Investment Budget As Projected on October 31, 1977

(In Thousands of Dollars)

| Year | Budget | Rural Aqueducts and drainage | XAYA-PIXCAYA Urban Water-Supply Project | Rural Health Services 1/ | Hospitals Construction 2/ | Hospitals Reconstruction 3/ | Hospitals IGSS | All Other |
|---|---|---|---|---|---|---|---|---|
| 1977 | 41.2 | 9.4 | 8.7 | 10.2 | 4.4 | 0.1 | -- | 8.4 |
| 1978 | 37.8 | 8.6 | 4.7 | 8.6 | 4.3 | 4.1 | 4.0 | 3.5 |
| 1979 | 44.4 | 5.0 | -- | 10.6 | 2.9 | 9.0 | 14.0 | 2.9 |
| After | 50.4 | 1.8 | -- | 7.0 | 1.0 | 10.2 | 24.9 | 5.5 |
| TOTAL | 173.8 | 24.8 | 13.4 | 36.4 | 12.6 | 23.4 | 42.9 | 20.3 |
| Percentage | 100.0 | 14.3 | 7.7 | 20.9 | 7.2 | 13.5 | 24.7 | 11.7 |

1/ Construction, equipment and manpower training for new health centers and posts.
2/ In Sololá, San Marcos, Quezaltenango and Atlantic zone.
3/ San Juan de Dios (Guatemala City) and Pedro de Betancourt (Antigua Guatemala).

Source: Planning Council: Unpublished and preliminary data from the Infrastructure Section.

IGSS reaches about only 13% of the national population. If it is assumed that another 10 to 12 percent has the means to purchase private services, approximately 75% of the population is dependent on services provided by the Ministry of Health.

The detailed data on MOH expenditures as developed by the Health Unit of the National Economic Planning Council appears in the tables appended to this chapter. Only those tables have been incorporated into the text which are directly relevant to the major concerns of the Health Sector Assessment.

The first point that strikes the analyst of the MOH budget is the irrelevance of the Ministry's investment budget. The investment budget of the MOH has no particular significance because it is partial: the only investment funds registered are those designated for the purchase of equipment and machinery and for the assignment of contracts (for construction and improvements) to private firms. All funds to be expended by the Ministry of Public Works for construction or repair of hospitals, health centers, health posts, water and sewerage systems and so forth, are assigned directly to the Ministry of Public Works and do not appear in the MOH budget. Thus the question of the adequacy of operating funds in relation to investment allocations can only be analyzed at the level of the aggregate health sector. Analysis of MOH expenditures will, therefore, be limited to the current or operating budget.

Two alternative breakdowns of MOH operating expenditures are available: the first shows the breakdown between personnel services, materials and supplies, and machinery and equipment (see Tables A-1 and A-2 appended to this chapter). The second breakdown is functional (administration, training, purchase of drugs, preventive versus curative measures and so forth). (See Tables A-3 and A-4.)

The analysis of the MOH operating budget covers the following points: rate of growth since 1972 and projections according to the National Development Plan; relationship between expenditures on preventive and curative services; ratio of MOH expenditures for various types of medical and health personnel; relative importance given to training, purchase of drugs and administration; and MOH expenditures per capita in the Department of Guatemala (mostly for the Capital City) as compared with the rest of the country.

1. Rate of Growth of the Operating Budget

Between 1972 and 1977, the total operating expenditures of the MOH increased from $22.2 million to $42.3 million or at an average annual compound rate of 13.7% (see Table A-1, appended). A very large increase (24% was registered in 1975.

Impressive as this increase has been, the growth rate projected by the National Economic Planning Council for 1978-1980 in its National Development Plan is even greater. In Table 4.7-C a projection based on the historical trend is placed alongside the figures that appear in the development plan. For 1978, the historical trend projection would yield an operating budget of $47.9 million, compared with a plan figure of $62.2 million. 1/ It is clear that the MOH will not receive all that the plan calls for. The Ministry of Finance is now expecting an operating budget of about $50 million for 1978, which would place it only some $2 million above the historical trend projection. Historical trends obviously play a stronger role than plans.

The relative importance of the Ministry of Health can be judged by comparing its total expenditures with certain economic aggregates of the same year: the Gross Domestic Product (or value of sales of all domestic final products); the Consolidated National Budget, covering decentralized agencies as well as the Central Government Budget, and the Central Government budget, covering all central ministries and the national legislative and judicial branches.

These comparisons are contained in Table 4.7-D, and are pertinent to the concern expressed in the Five-Year Plan for Health that the MOH had not been growing as fast as other ministries during the years 1970-1973. The table indicates that the MOH's share of the Central Government Budget fell from 9.8 to 8.9 percent, and its share of the Consolidated National Budget dropped even more, from 7.2 to 5.5 percent. These declines really occurred between 1970 and 1972. (As an aside, the total Central Budget grew somewhat more slowly than the Consolidated one.) During the even shorter period of 1972 to 1975, the percentage share for the MOH was unchanged. However, fundamentally over the entire period the MOH portion of the GDP has consistently been about 1%.

---

1/ For a more detailed comparison of projections based on historical trend with those of the development plan, see Tables A-1 through A-4, appended to this chapter.

TABLE 4.7-C

Ministry of Health: Projections of Operating Budget over 1978-80
Historical Growth Rate Versus Amounts Planned

(In Thousands of Dollars)

| | 1977 | 1978 | | 1979 | | 1980 | |
|---|---|---|---|---|---|---|---|
| | (Budget) | Historical Trend | Plan | Historical Trend | Plan | Historical Trend | Plan |
| Total Operating Budget | 42.3 | 47.9 | 62.2 | 54.3 | 77.5 | 61.5 | 96.1 |
| Personal Services | 21.3 | 23.8 | 30.0 | 26.7 | 37.3 | 29.8 | 46.4 |
| Other Services | 1.4 | 1.7 | 1.7 | 2.0 | 2.2 | 2.3 | 2.7 |
| Materials & Supplies | 9.7 | 10.8 | 14.8 | 12.0 | 18.4 | 13.4 | 22.8 |
| Machinery & Equipment | 1.0 | 1.2 | 1.9 | 1.5 | 2.4 | 1.9 | 3.0 |
| Construction & Improvements (by contract) | -- | .2 | .1 | .3 | .2 | .5 | .2 |
| Transfers | 7.4 | 8.7 | 11.6 | 10.2 | 14.5 | 11.9 | 18.0 |
| Others | 1.5 | 1.5 | 2.0 | 1.6 | 2.5 | 1.7 | 3.1 |

Source: Health Planning Unit, Annex Tables A-1 and A-2.

GUATEMALA

TABLE 4.7-D

Comparison with Gross Domestic Product and with Governmental Budget Totals of Health Expenditures Made by the Ministry of Health (MOH) and by the Ministry and Social Security Institute (IGSS) Combined

| EXPENDITURES & OTHER TOTALS | 1970 | | 1971 | | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | $ | % | $ | % | $ | % | $ | % | $ | % | $ | % | $ | % |
| Gross Domestic Product (GDP) | 1,901,038.0 | -- | 1,984,818.0 | -- | 2,101,645.0 | -- | 2,569,309.0 | -- | 3,161,490.0 | -- | 3,585,775.0** | -- | Not Available) - | |
| Ministry of Health (MOH) | 20,353.5 | 1.1 | 20,649.9 | 1.0 | 22,846.7 | 1.1 | 25,430.8 | 1.0 | 29,975.0 | 0.9 | 35,168.8 | 1.0 | 39,900.6* | (N.A.) |
| Total MOH & IGSS | (Not Available) | (N.A.) | (Not Available) | (N.A.) | 47,078.3* | 2.2 | 53,700.7 | 2.1 | 60,721.8 | 1.9 | 71,159.9 | 2.0 | 82,537.8* | (N.A.) |
| Consolidated Nat'l. Budget | 280,853.0 | -- | 295,989.6 | -- | 418,855.4 | -- | 472,847.9 | -- | 552,727.0 | -- | 634,312.9 | -- | Not Available) | -- |
| Ministry of Health (MOH) | 20,353.4 | 7.2 | 20,649.9 | 7.0 | 22,846.7 | 5.5 | 25,430.8 | 5.4 | 29,975.0 | 5.4 | 35,168.8 | 5.5 | 39,900.6* | (N.A.) |
| Total MOH & IGSS | (N.A.) | (N.A.) | (N.A.) | (N.A.) | 47,078.3* | 11.2 | 53,700.7 | 11.4 | 60,721.8 | 11.0 | 71,159.9 | 11.2 | 82,537.8* | (N.A.) |
| Central Gov't. Budget | 208,652.8 | -- | 211,912.0 | -- | 261,477.7 | -- | 278,778.0 | -- | 351,620.9 | -- | 394,024.9 | -- | Not Available) | -- |
| Ministry of Health (MOH) | 20,353.4 | 9.8 | 20,649.9 | 9.7 | 22,846.7 | 8.7 | 25,430.8 | 9.1 | 29,975.0 | 8.5 | 35,168.8 | 8.9 | 39,900.6* | (N.A.) |
| Total MOH & IGSS | (N.A.) | (N.A.) | (N.A.) | (N.A.) | 47,078.3* | 18.0 | 53,700.7 | 19.3 | 60,721.8 | 17.3 | 71,159.9 | 18.1 | 82,537.8* | (N.A.) |

Sources: Gross National Product: Banco de Guatemala, Boletín Estadístico del Banco de Guatemala, Octubre-Diciembre, 1976, pp.52,72,85.
Ministry of Health: Table 1
Total MOH & IGSS: sums from Tables 1 & 3.
Consolidated & Central Budgets: Ministerio de Finanzas Públicas, Dirección Técnica del Presupuesto, Evaluaciones Presupuestales 1970-1975.

Notes; See Tables 1 & 3, especially for inclusions that overstate health expenditures. But health expenditures are understated due to omission of other organization

** = Preliminary data.

* = Budgeted rather than executed data (in whole or in part).

2. Emphasis on Preventive Versus Curative Measures

Data classifying MOH current expenditures into "curative" and "preventive" measures are presented in Table 4.7-E, and appear in great detail in Table A-4, appended to this chapter. Admittedly, this separation is somewhat arbitrary. The operating expenses of hospitals (located in the urban areas) have been classified as "curative", and allocations to the Ministry for purposes such as environmental sanitation, malaria eradication, maternal-child care, and assignments to rural health centers and health posts have been classified as "preventive". Current bookkeeping procedures do not permit a more refined classification. 1/

The allocations summarized in Table 4.7-E show that, on the basis of the classification criteria described above, the "curative" measures are considerably more important than the "preventive" ones in the MOH budget. The ratio of MOH expenditures for "curative" to "preventive" measures is about 2 to 1. Comparison of the projection of the historical trend with the target figures of the National Development Plan for the period 1978-1980 indicate that implementation of the Plan would result in even greater emphasis on curative measures (i.e., mostly hospital care). Projection of the historical data yields a ratio of 1.7 to 1.8 in favor of curative measures, compared with a ratio of 2.2 for the plan targets (see Table 4.7-E).

3. Outlays on Training, Drugs and Aministration

Data and projections on MOH expenditures for training, drug purchases and administrative expenses are presented in Table 4.7-F, and appear in greater detail in Tables A-3 and A-4, appended to this chapter. The projections for 1978-1980 are from the National Development Plan.

The Health Sector Assessment emphasizes the inadequate level of outlays on training and drug purchases as well as the relatively large amounts allocated for administration. There is no basis for judging whether outlays on administration are excessive, but there can be no question that outlays on training and drugs have been low. Thus, in 1976,

---

1/ Hospitals do provide some "preventive" services, while health posts also have a curative function. Since the statistical data available do not permit us to make allowance for such facts, the conclusions drawn from the figures must be treated with circumspection.

TABLE 4.7-E

Ministry of Health: Ratio of Operating Expenses for Preventive and Curative Purposes, 1973-77 and Projections for 1978-80

(In Thousands of Dollars)

| | (1) Curative Measures | | (2) Preventive Measures | | (3) (1) ÷ (2) | |
|---|---|---|---|---|---|---|
| 1973 | 11,350 | | 4,377 | | 2.6 | |
| 1974 | 11,331 | | 6,195 | | 1.8 | |
| 1975 | 13,813 | | 7,977 | | 1.7 | |
| 1976 | 16,968 | | 7,638 | | 2.2 | |
| 1977 | 18,088 | | 10,570 | | 1.7 | |
| | Historical Trend | Plan | Historical Trend | Plan | Historical Trend | Plan |
| 1978 | 20,331 | 27,906 | 11,733 | 12,561 | 1.7 | 2.2 |
| 1979 | 22,851 | 34,736 | 13,084 | 15,635 | 1.7 | 2.2 |
| 1980 | 25,685 | 43,116 | 14,456 | 19,407 | 1.8 | 2.2 |

Source: For data through 1976, Dirección de Contabilidad del Estado, Year-end Balances. For 1977, the budget. Projections for 1978-80 are from the National Development Plan.

TABLE 4.7-F

Ministry of Health: Expenditures for Training, Drugs and Administration in Relation to Total Operating Expenditures for 1973-77, and Plan Projections for 1978-80

(In Thousands of Dollars)

| | Expenditures | | | Total Operating Expenditures | Percent of Total | | |
|---|---|---|---|---|---|---|---|
| | Administration (1) | Training (2) | Drugs (3) | (4) | Administration as % of total | Training as % of Total | Drugs as % of Total |
| 1973 | 2,611 | 767 | 483 | 23,350 | 11.2 | 3.3 | 2.1 |
| 1974 | 2,639 | 1,006 | 694 | 26,841 | 9.8 | 3.8 | 2.6 |
| 1975 | 3,647 | 1,853 | 813 | 33,156 | 11.0 | 5.6 | 2.5 |
| 1976 | 3,961 | 1,402 | 803 | 37,839 | 10.5 | 3.7 | 2.1 |
| 1977 | 5,569 | 2,041 | 883 | 42,253 | 13.2 | 4.8 | 2.1 |
| 1978 | 6,330 | 2,490 | 1,321 | 62,230 | 10.2 | 4.0 | 2.1 |
| 1979 | 7,941 | 3,038 | 1,645 | 77,460 | 10.3 | 3.9 | 2.1 |
| 1980 | 9,922 | 3,706 | 2,041 | 96,148 | 10.3 | 3.9 | 2.1 |

Source: For 1973-76, Dirección de Contabilidad del Estado End of Year Balances of Fiscal Operations; for 1977, budget; for 1978-80, projections in National Development Plan.

the total actual outlays by the Ministry on training and drug purchases were only $1.4 million and $800,000 respectively (Table 4.7-F). The Health Unit of the National Economic Planning Council emphasized particularly the inadequacy of the current training program.

The proportion of all three items to total operating expenditures has remained approximately constant in recent years, and the Plan contemplates no change in these proportions over 1978-1980 (Table 4.7-F). Still, it is gratifying that, in absolute terms, outlays on training and drug purchases are programmed for some substantial increases. Outlays on training are scheduled to rise from $1.4 million in 1976 to $3.7 million in 1980; while expenditures on drug purchases are programmed to rise from $800,000 to $2.0 million over this period. However, there is little hope that these ambitious plan targets will be attained.

## 4. Composition of MOH Staff

In its analysis of health manpower, the Assessment noted the following: 1) over-reliance on doctors in relation to other types of medical staff; 2) the shortage of professional nurses, health inspectors, trained midwives, rural health and lab technicians; and 3) the heavy concentration of medical personnel and facilities in the Capital City.

A detailed breakdown of MOH staff and their location, as well as a breakdown of MOH expenditures on its staff, appear in Tables A-5 and A-6 appended to this chapter. The data suggest the following:

Expenditures on doctors in 1977 were $3.7 million out of a total $9.5 million spent on medical and health personnel (Table A-5, appended). In that year, outlays on doctors absorbed 39% of the total medical personnel budget. Outlays for doctors were substantially greater than for any other type of personnel, except auxiliary nurses. In 1977, outlays on auxiliary nurses were $3.0 million, only slightly below expenditures on doctors. The distribution is summarized in Table 4.7-G.

While there is a large number of auxiliary nurses (nearly 2,700), the data support the claim (confirmed by the Planning Unit staff of the National Economic Planning

TABLE 4.7-G

Ministry of Health: Composition of Medical and Health Personnel and of Outlays on Personnel in 1977

| | Number of Personnel | Expenditures |
|---|---|---|
| Doctors | 928 | 3,700,476 |
| Professional Nurses | 553 | 1,384,224 |
| Auxiliary Nurses | 2,665 | 2,968,992 |
| Sanitary Inspectors | 190 | 373,080 |
| Rural Health Technicians | 102 | 208,080 |
| Supervisors | 52 | 159,600 |
| Laboratory Technicians | 350 | 416,484 |
| Dentists | 93 | 246,180 |
| TOTAL | 4,933 | Q 9,457,116 |

Source: Health Unit of the Planning Council.

Council) of serious shortages of professional nurses, sanitation inspectors, and rural health technicians. Analysis of the historical trend reveals that composition of this staff has not changed significantly over 1973-1977. (Table A-5, appended).

The Health Unit is well aware of the imbalance in the MOH staff. Provision was made in the 1974 National Health Plan to correct the problem. Thus the plan provides that the number of professional nurses on the MOH payroll be increased from 380 in 1975 to 1,606 in 1980; health inspectors also are to be increased from 380 to 1,606 during that period; while the number of rural health technicians is scheduled to rise from 143 to 881 (Table A-6, appended).

The distribution of MOH medical 1/ personnel between the Department of Guatemala and the rest of the republic in 1977 is illustrated in Table 4.7-H and is shown for the whole period 1973-1977 in Table A-6, appended to this report. The data indicate that in 1977, the Department of Guatemala had 44% of the country's total number of physicians and 56% of its professional (graduate) nurses. Total expenditures for the Department of Guatemala ($3.8 million) constituted 40% of total MOH expenditures on medical personnel.

The substantial discrepancy in expenditures per capita in the capital versus the rest of the country is further illustrated in Table 4.7-I which provides a breakdown of MOH operating expenditures by department, both in toto and on a per capita basis.

These figures, however, should be interpreted with caution. While they substantiate the finding that a disproportionate amount is allocated to the capital, allowance should be made for the fact that the medical and health personnel and facilities in the capital provide some supporting services to the rest of the country. Admittedly, this support is limited, but it cannot be ignored. There is no way of quantifying it on the basis of the data currently available.

---

1/ Our analysis is limited to workers directly engaged in the provision of medical and health services and excludes supporting personnel such as office workers and drivers.

TABLE 4.7-H

Ministry of Health: Distribution of Medical Personnel and Outlays between the Department of Guatemala and the rest of the Country in 1977

| | Department of Guatemala | | Rest of the Country | |
|---|---|---|---|---|
| | Number of Personnel | Expenditures | Number of Personnel | Expenditures |
| Doctors | 410 | 1,038,528 | 518 | 2,661,948 |
| Professional Nurses | 312 | 779,820 | 241 | 604,404 |
| Auxiliary Nurses | 1,163 | 1,285,272 | 1,502 | 1,683,720 |
| Sanitary Inspectors | 63 | 120,480 | 127 | 252,600 |
| Rural Health Technicians | -- | -- | 102 | 208,080 |
| Supervisors | 46 | 144,120 | 6 | 15,480 |
| Laboratory Technicians | 254 | 282,276 | 96 | 134,208 |
| Dentists | 44 | 139,824 | 49 | 106,356 |
| TOTAL | 2,292 | 3,790,320 | 2,641 | 5,666,796 |

Source: Health Unit of the Planning Council.

TABLE 4.7-I

**Distribution of MOH Operating Budget by Departments and Expenditures Per Capita in 1977**

| Health Area | Budget Allocation | Estimated Population 1977 | Annual Per Capita Expenditures on Health Services |
|---|---|---|---|
| Guatemala 1/ | 12,166.6 | 1,714,105 | 7.10 |
| El Progreso | 198.8 | 88,897 | 2.24 |
| Sacatepéquez | 729.3 | 107,767 | 6.77 |
| Chimaltenango | 272.8 | 219,650 | 1.24 |
| Escuintla | 855.3 | 226,182 | 1.63 |
| Santa Rosa | 660.4 | 259,900 | 2.54 |
| Huehuetenango | 682.6 | 402,787 | 1.69 |
| El Quiché | 418.4 | 356,156 | 1.17 |
| Totonicapán | 353.7 | 198,128 | 1.79 |
| Sololá | 378.1 | 142,939 | 2.65 |
| Quetzaltenango | 1,447.9 | 394,248 | 3.67 |
| San Marcos | 579.9 | 508,146 | 1.14 |
| Retalhuleu | 430.1 | 199,066 | 2.16 |
| Suchitepéquez | 614.2 | 270,498 | 2.27 |
| Jalapa | 342.5 | 128,887 | 2.66 |
| Jutiapa | 530.1 | 271,426 | 1.95 |
| Izabal | 659.7 | 228,347 | 2.89 |
| Zacapa | 662.8 | 133,126 | 4.98 |
| Chiquimula | 529.2 | 192,888 | 2.74 |
| Alta Verapaz | 556.0 | 358,914 | 1.55 |
| Baja Verapaz | 315.5 | 134,809 | 2.34 |
| Petén | 514.1 | 52,260 | 9.84 |
| TOTAL COUNTRY | 23,898.0 | 6,589,126 | 3.63 |
| All Departments Minus Guatemala | 11,731.4 | 4,875,021 | 2.41 |

1/ The Health Area of the Department of Guatemala does not include technical-administrative services.

SOURCE: Budget of the Ministry of Health.
The population estimates are from the Program Division of the Dirección General de Servicios de Salud.

5. Maintenance Expenditures

The Health Unit was not able to provide any data on past or proposed maintenance expenditures. The MOH has no central maintenance unit and hence no maintenance budget labeled as such. The Health Unit of the Planning Council is in full agreement with the finding that the allocation for maintenance is woefully inadequate. The Health Sector Assessment estimates the annual amounts allocated for maintenance of MOH equipment and facilities at only $500,000. 1/ The Health Unit suspects that even this low estimate may err on the high side because funds budgeted for repair and parts are often transferred to other uses. The Health Sector Assessment has estimated (see Chapter 4.3) that $13 million is needed to repair and restore existing facilities, and that the annual cost of an adequate maintenance program thereafter is $10.6 million annually. The Unit has no alternative estimate.

Evaluation of the Budgetary Projections

The adequacy of the budgetary projections, for the overall health sector as well as for the MOH, should be evaluated on the basis of three criteria: (1) realism in terms of the availability of financial resources; (2) consistency with executing capacity; and (3) adequacy in relation to requirements. Unfortunately, the in-depth research required to provide reliable answers to these questions has not been done and only very tentative judgements can be made on the basis of available data.

1. Realism in Terms of Financial Resources

The Health Unit of the Planning Council is confident that the financial resources required to carry out the overall public health sector investment programmed over 1978-1980 will be forthcoming. A substantial share of this investment is based on funds provided by the international agencies, while the Government of Guatemala has committed itself to provide the necessary counterpart. Should government revenues fall short, bonds would be issued to make up the deficiency.

---

1/ Estimate that appears in Annex 5.11: Maintenance Service Requirements.

The increases planned for the operating budget of the Ministry of Health are much more problematical. Table 4.7-C notes that the total operating budget of the Ministry of Health is scheduled to rise from $42 million in 1977 to $62 million in 1978, $77 million in 1979 and $96 million in 1980. There is little likelihood that these targets will be reached.

2. Consistency with Executing Capacity

The Health Unit staff is optimistic that the executing capacity to implement the planned investment program exists. There are two reasons for skepticism: First, the increase in total public sector investment that is planned for 1977-1980 is extremely high. As noted in Table 4.7-A, total health sector investment is scheduled to rise from about $15 million in 1976 to $41 million in 1977, $38 million in 1978, $44 million in 1979 and $50 million in 1980. The substantial increase is due mostly to investment related to earthquake reconstruction. Secondly, there is evidence that, when programmed investment rises substantially, the proportion executed drops. Thus, when programmed investment rose from $3.0 million to $14.5 million between 1975 and 1976, realized investment increased hardly at all, just from $1.8 million to $2.1 million (see Table A-8, appended). Thus, it can be expected that the investment scheduled for the health sector over 1977-1980 will in fact be spread over a much longer period, even if the financial resources become available.

3. Adequacy of Planned Targets in Relation to Requirements

Comments are most difficult in this area since the job of quantifying the overall requirements of the health sector, of relating these requirements to available resources and of defining priority areas, has not been done. However, on the basis of available data and the judgement of informed technicians of what is likely to be accomplished over 1978-1980, four areas have been tentatively defined in which accomplishments are likely to fall far short of requirements:

a. Training: The National Health Plan calls for substantial increases in the number of professional nurses, sanitation inspectors and rural health technicians (see Table A-7). Indications are that these targets will not be reached.

b. Drugs: Substantial increases are planned but questions persist whether or not the increases will be realized.

c. Environmental Sanitation: The water supply and sewage sector study by the World Bank indicated that the 1980 service goals set by the Government of Guatemala will actually necessitate a total investment of $177 million in 1976 prices over the 1975-1980 period. The World Bank report indicated that it was probable that no more than half of this investment actually would be forthcoming.

d. Maintenance: The need to provide much larger funds for maintenance is understood at the technical level, but there is no evidence that it has been grasped at the decision-making level. So far, no corrective action has been taken.

Improving the Planning Process

The Government of Guatemala has a definite capability in the area of health sector planning. The National Health Plan of 1974 includes a clear definition of the health sector problem as well as a diagnosis which closely parallels that of the current Assessment. The Plan sets quantitative targets for the various types of medical personnel required, projects the operating and investment budgets, indicates the sector's investment requirements with breakdown by region and sub-sector (e.g., potable water, manpower training, hospital construction, etc.). The Three-Year Plan (1977-1979) of the Planning Council drafted in May 1977, provides a list of specific projects to be undertaken in various parts of the country, including a description of the present status and annual budget for each project over the period 1977-1979.

Public health planning in Guatemala has serious shortcomings. No unit exists which is capable of developing and keeping current an integrated health sector development plan, i.e., a plan that combines into a meaningful integrated whole, the plan components of specific targets, estimated financial resources required to attain them, projection of resources available and their sources, definition of priorities, and the development of specific projects and policies. The Plan should include all institutions active in the public health field, including the IGSS and charitable organizations. Even the 1974 National Health Plan, for all of its merits, falls short of meeting these requirements. Moreover, a plan must be continuously updated if it is to serve a useful purpose. The Ministry of Health suffers from a lack of qualified personnel, up-to-date statistical information and data processing equipment.

There is ample confirmation of the Health Sector Assessment's finding of lack of institutional coordination in the health planning sector. While many public institutions are involved in health planning, none has full responsibility for the planning process. Moreover, planning and implementation responsibilities are vested in different units. Consideration should be given to combining the statistical, programming, and planning offices of the Ministry of Health into a single unit entrusted with the responsibility of developing (and keeping up-to-date) a complete plan for the Ministry. This same unit should also be given the responsibility for supervising implementation. It goes without saying that this expansion of function will require increasing and upgrading of the Health Unit's personnel. This would enable it to concentrate on coordinating the MOH plan with those of the IGSS and private donors; and of relating the total public sector health plan to the national development plan. The Health Unit of the Planning Council should not need to get involved with the development of the specifics of the MOH plan, as is presently the case.

There appears to be no close coordination between the planners sitting in the Capital and the staff working in the field at the Health Area Chief level. There is no direct knowledge of requirements in remote communities and rural areas. The weakest link in the planning process is a lack of knowledge of actual requirements and priorities.

The whole planning process should be given much greater weight in decision-making within the Government of Guatemala. At present, the only health planning capacity is in the Planning Council. However, the activities are peripheral to the Ministry of Health decision-making process. Many key investment decisions are made in the Ministry of Health on an ad hoc basis and are heavily influenced by political considerations. The decision to reorganize, unify and strengthen the health planning machinery must include capacity within the Ministry of Health at national and department levels and must be contingent on increasing planners participation in decisions involving the allocation of both investment and operating funds.

Summary and Conclusions

1. Total public expenditures on the aggregate health sector increased substantially between 1971 and 1976, from $38 million in 1971 to $96 million in 1976, or at an average annual compound rate of 21% (Table 4.7-A).

2. Both operating and investment funds allocated to the public health sector have undergone substantial increases over this period. Operating expenditures increased from $35 million in 1971 to $81 million in 1976, while investment spending increased from $2.8 million to $15 million (Table 4.7-A).

3. The ratio of the annual increase in operating expenditures over prior year investment was low over 1972-1974, but rose substantially in 1975 and again in 1976 (Table 4.7-A).

4. The Planning Council has not projected operating expenditures for the public health sector as a whole. Projections of investment expenditures for the sector indicate very substantial increases over 1976-1980 owing to earthquake reconstruction (Table 4.7-A). The increase between 1976 and 1978, for example, is 154%. These increases will call for further substantial increases in operating expenditures.

5. The investment plan shows continued emphasis on hospital construction and reconstruction. This category is scheduled to absorb 45 percent of total planned investment over 1977-1980. Rural health services account for 21 percent and rural aqueducts and water supply projects 14 percent (Table 4.7-B).

6. The operating budget of the Ministry of Health also shows sharp increases over the period 1972-1977, up from $22 million to $42 million, reflecting an average annual compound growth rate of 13.7%. Further substantial increases are provided in the Planning Council's National Development Plan. 1/ The Ministry's operating budget is scheduled to rise from $42 million in 1977 to $62 million in 1978,

---

1/ Tables A-1 and A-2, appended to this chapter.

$77 million in 1979 and $96 million in 1980. It is most unlikely that these hefty increases will materialize, but they indicate awareness that past allocations to the Ministry have been inadequate.

7. On the basis of a crude classification of measures into "curative" and "preventive", it has been determined that between 1973 and 1977, the operating expenditures of the Ministry favored curative measures by a ratio of about 2 to 1. There are no indications that this imbalance will be corrected under the development plan. In fact, implementation of the plan would raise that ratio further to 2.2 to 1 (Table 4.7-E).

8. The proportions of the Ministry of Health operating budget spent on training, drug purchases and administration have remained approximately constant over 1973-1977. The figures confirm the Assessment's finding that the allocation of funds for training and drug purchases has been low (Table 4.7-F).

9. A relatively high proportion of the Ministry's personnel budget is spent on doctors (39%) and on auxiliary nurses (31%), while the proportion allocated to other kinds of medical and health personnel is low (Table 4.7-G). The projections in the National Health Plan, however, reveal that the Planning Council and the MOH realize the deficiencies in the current Ministry of Health staffing pattern. Sharp increases for training and salaries were programmed for professional nurses, sanitation inspectors and rural health technicians.

10. The data confirm the finding that a substantial proportion of the Ministry's operating expenditures are for the Department of Guatemala (40%), though it must be borne in mind that some of the more serious cases are referred to hospitals in the Capital City.

11. Only a most preliminary evaluation of the Planning Council's financial projections can be attempted at this stage. Their projections were assessed in terms of three criteria: the availability of financial resources, the ability of the Government of Guatemala to execute the investment program, and relation of plan targets to requirements.

12. The investment budget, while highly ambitious, is likely to have sufficient financing owing to the substantial amount of foreign assistance that is forthcoming. The Government of Guatemala has committed itself to provide the counterpart. On the other hand, there is serious question with respect to the capacity of the Government of Guatemala to implement an investment/reconstruction program of the scale envisaged. In all likelihood, the investment program will be stretched out over a much longer period. With regard to the Ministry's operating budget, there is practically no hope that the Ministry of Health will receive the $20 million increase in 1978 called for by the National Development Plan.

13. With regard to the adequacy of the budget in relation to requirements, considerable more data are needed before a meaningful generalization on this point can be made. However, it appears that investment targets fall short in relation to requirements in the areas of manpower training, the acquisition of drugs and environmental sanitation (potable water and sewerage) outside the Capital City.

14. The Government of Guatemala has demonstrated the capability of preparing a national health plan. However, there are obvious weaknesses in its ability to prepare a well-integrated plan that interrelates objectives, requirements and available resources; defines priorities and specific policies; and includes the preparation of projects acceptable to the international financial institutions. The 1974 National Health Plan should be revised, developed more thoroughly and continuously maintained up-to-date. Institutions involved in health sector planning should be consolidated and strengthened (particularly in the case of the programming and planning divisions of the Ministry of Health); and much greater weight should be given to the recommendations of the plan at the decision-making level.

TABLE A-1

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE
EXPENDITURES CAUSED YEARS 1972-1976 AND THEIR TENDENCY FOR 1978/80
(In thousands of dollars)

| PURPOSE OF THE EXPENDITURE | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|---|
| BUDGET TOTAL (I + II) | 22 846.7 | 26 054.6 | 29 973.1 | 35 134.3 | 39 900.6 | 53 695.5 | 52 249.1 | 60 657.2 | 71 104.9 |
| I. OPERATION | 22 210.0 | 23 974.1 | 26 840.8 | 35 156.2 | 37 839.2 | 42 252.9 | 47 932.5 | 54 266.3 | 61 529.0 |
| Personnel Services 1/ | 12 225.2 | 12 347.5 | 12 445.3 | 15 648.1 | 18 244.8 | 21 322.0 | 23 838.0 | 26 650.9 | 29 735.7 |
| Permanent Personnel | 11 402.3 | 11 345.6 | 11 006.2 | 14 063.7 | 16 466.3 | 19 329.9 | | | |
| Personnel by Contract | 182.7 | 286.1 | 441.7 | 557.1 | 582.3 | 702.3 | | | |
| Personnel by Payroll | 577.5 | 641.6 | 849.8 | 933.7 | 1 095.7 | 1 064.4 | | | |
| Other Personnel Services | 62.7 | 74.2 | 87.6 | 93.6 | 100.5 | 206.3 | | | |
| No-Personnel Services | 536.1 | 844.8 | 760.9 | 901.2 | 1 059.4 | 1 400.6 | 1 652.7 | 1 950.2 | 2 301.2 |
| Materials and Supplies | 4 593.1 | 4 674.1 | 7 007.2 | 8 500.5 | 8 985.1 | 9 687.8 | 10 792.2 | 12 022.5 | 13 393.1 |
| Groceries | 1 526.5 | 1 653.9 | 2 098.8 | 2 462.3 | 2 562.0 | 2 712.2 | | | |
| Fuel | 223.0 | 229.8 | 674.5 | 697.3 | 793.0 | 908.2 | | | |
| Medicines 2/ | --- | --- | 1 844.9 | 2 358.8 | 2 383.8 | 2 558.2 | | | |
| Other Materials and Supplies | 2 843.6 | 2 990.4 | 2 389.0 | 2 982.1 | 3 246.3 | 3 509.3 | | | |
| Machinery and Equipment | 327.3 | 662.1 | 405.0 | 1 323.5 | 1 170.4 | 977.8 | 1 222.3 | 1 527.8 | 1 909.8 |
| Constructions, Additions and Improvements (by contract) | 15.5 | --- | --- | 22.5 | 90.0 | -- | 216.9 | 336.6 | 522.6 |
| Transfers | 3 347.6 | 3 763.4 | 4 975.2 | 5 053.2 | 7 066.3 | 7 395.8 | 8 667.9 | 10 158.7 | 11 906.0 |
| Other Groups of Expenditures | 1 165.2 | 1 482.2 | 1 247.2 | 1 705.2 | 1 223.2 | 1 469.0 | 1 542.5 | 1 619.6 | 1 700.6 |
| II. INVESTMENT | 636.7 | 2 080.5 | 3 132.3 | 1 978.1 | 2 061.4 | 11 442.6 | 4 316.9 | 6 390.9 | 9 575.9 |
| Personnel Services 1/ | 261.9 | 318.0 | 290.4 | 337.3 | 563.9 | 954.5 | 956.1 | 1 274.9 | 1 723.0 |
| Permanent Personnel 3/ | 124.1 | 122.7 | 97.1 | 114.8 | 110.1 | 83.4 | 124.8 | 132.9 | 141.6 |
| Personnel by Contract | 61.4 | 70.4 | 83.8 | 112.3 | 254.0 | 381.0 | 516.6 | 736.8 | 1 050.8 |
| Personnel by Payroll | 80.2 | 100.2 | 92.8 | 102.0 | 126.6 | 117.6 | 159.1 | 178.3 | 199.8 |
| Other Personnel Services | 16.2 | 24.7 | 16.7 | 8.2 | 73.2 | 372.5 | 155.6 | 226.9 | 330.8 |
| No-Personnel Services | 37.8 | 40.4 | 98.9 | 139.1 | 178.0 | 110.1 | 386.3 | 569.0 | 838.2 |
| Materials and Supplies | 96.4 | 260.1 | 116.3 | 75.1 | 292.9 | 1 902.5 | 510.5 | 674.2 | 890.1 |
| Fuel | 10.3 | 9.7 | 17.0 | 17.6 | 32.6 | 49.7 | 57.9 | 77.4 | 103.2 |
| Other Materials and Supplies | 66.1 | 250.4 | 99.3 | 57.5 | 260.3 | 1 852.8 | 452.6 | 596.8 | 786.9 |
| Machinery and Equipment | 85.7 | 266.2 | 1 111.7 | 278.2 | 129.5 | 1 550.5 | 159.2 | 176.5 | 195.7 |
| Constructions, Additions and Improvements (by contract) | 134.9 | 892.8 | 1 512.0 | 1 145.4 | 894.1 | 3 794.1 | 2 301.8 | 3 693.3 | 5 925.9 |
| Transfers 4/ | --- | 303.0 | 3.0 | 3.0 | 3.0 | 3 130.9 | 3.0 | 3.0 | 3.0 |

1/ Includes Salary Complements.

2/ No data available for 1972 and 1973.

3/ For the estimate the years 1974-75-76 were used.

4/ The $3,000.00 estimated for 1978/80, are destined for expenditures of fiscal services.

FORMULA USED: Pn = Po (1+r)

SOURCE: For 1972-76 data, Balance of Leftovers Fiscal Years 1972-76. Accounting Directorate of the State; for 1977, budgeted figures. For 1978-80 projections, Health Unit, National Economic Planning Council, with minor ROCAP adjustments.

TABLE A-2

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE

BUDGET PROJECTIONS FOR 1978-1980

(In thousands of dollars)

| PURPOSE OF THE EXPENDITURE | 1 9 7 8 | 1 9 7 9 | 1 9 8 0 |
|---|---|---|---|
| BUDGET TOTAL (I + II) | 83 333.0 | 91 254.0 | 96 248.0 |
| I. OPERATING | 62 230.0 | 77 460.0 | 96 148.0* |
| Personnel Services | 30 005.3 | 37 348.7 | 46 359.4 |
| Permanent Personnel | 27 080.4 | 33 707.9 | 41 840.2 |
| Personnel by Contract | 957.7 | 1 192.0 | 1 479.3 |
| Personnel by Payroll | 1 801.9 | 2 243.0 | 2 784.2 |
| Other Personnel Services | 165.3 | 205.8 | 255.4 |
| No-Personnel Services | 1 742.3 | 2 168.6 | 2 691.9 |
| Materials and Supplies | 14 776.8 | 18 393.3 | 22 830.8 |
| Groceries | 4 213.5 | 5 244.7 | 6 509.9 |
| Fuel | 1 304.3 | 1 623.3 | 2 014.9 |
| Medicines | 3 920.4 | 4 879.8 | 6 057.1 |
| Other Materials and Supplies | 5 338.8 | 6 645.5 | 8 248.7 |
| Machinery and Equipment | 1 924.8 | 2 395.9 | 2 973.9 |
| Constructions and Improvements (by contract) | 148.0 | 184.2 | 228.6 |
| Transfers | 11 621.2 | 14 465.4 | 17 955.3 |
| Other Groups of Expenditures | 2 011.6 | 2 503.9 | 3 108.1 |
| II. INVESTMENT | 21 103.0 | 13 794.0 | 100.0 |
| Personnel Services | 5 772.8 | 3 773.4 | 27.4 |
| Permanent Personnel | 1 127.1 | 736.7 | 5.3 |
| Personnel by Contract | 2 600.3 | 1 699.7 | 12.3 |
| Personnel by Payroll | 1 296.0 | 847.2 | 6.1 |
| Other Personnel Services | 749.4 | 489.8 | 3.5 |
| No-Personnel Services | 1 822.2 | 1 191.1 | 8.6 |
| Materials and Supplies | 2 998.5 | 1 959.9 | 14.2 |
| Fuel | 333.7 | 218.1 | 1.5 |
| Other Materials and Supplies | 2 664.8 | 1 741.8 | 12.6 |
| Machinery and Equipment | 1 325.7 | 866.6 | 6.2 |
| Constructions and Improvements (by contract) | 9 153.0 | 5 982.9 | 43.3 |
| Transfers | 30.7 | 20.1 | 0.1 |

* Estimated figure.

SOURCE: National Development Plan.
Three-Year Plan of Investments.

TABLE A-3

EXECUTED BUDGET
BY TYPE OF SERVICE
MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE, YEARS 1973-1977
AND ITS TENDENCY FOR 1978/1980
(In thousands of dollars)

| TYPE OF SERVICE | 1973 | 1974 | 1975 | 1976 | 1977 | 1978 | 1979 | 1980 |
|---|---|---|---|---|---|---|---|---|
| OPERATING EXPENSES | 23 350.4 | 26 840.8 | 33 156.2 | 37 839.2 | 42 252.9 | 48 288.1 | 55 304.0 | 63 273.4 |
| General | 3 860.3 | 4 338.7 | 6 312.6 | 6 166.7 | 8 492.2 | 10 254.5 | 12 384.6 | 14 959.6 |
| Administration (Direct, Programming, Administration) | 2 610.6 | 2 638.5 | 3 646.6 | 3 961.0 | 5 568.5 | 6 737.9 | 8 152.8 | 9 864.9 |
| Human Resources | 766.5 | 1 006.1 | 1 852.7 | 1 402.3 | 2 040.9 | 2 489.9 | 3 037.8 | 3 706.0 |
| National Drugstore | 483.2 | 694.2 | 813.3 | 803.4 | 882.8 | 1 026.7 | 1 194.0 | 1 388.7 |
| Preventive Measures | 4 377.2 | 6 195.4 | 7 977.0 | 7 637.8 | 10 570.2 | 11 732.9 | 13 083.5 | 14 456.1 |
| Divisions of: | | | | | | | | |
| Health Education | 25.1 | 22.3 | 28.4 | 32.5 | 35.1 | | | |
| Environmental Sanitation | 112.4 | 213.4 | 294.1 | 300.2 | 802.4 | | | |
| Epidemiology | 235.6 | 374.1 | 450.6 | 441.1 | 303.6 | | | |
| Tuberculosis | 172.1 | 151.3 | 237.9 | 208.5 | 234.8 | | | |
| Malaria | 1 753.9 | 2 383.5 | 2 638.9 | 2 799.6 | 3 064.7 | | | |
| Maternal/Child | 95.8 | 165.4 | 326.8 | 223.1 | 289.2 | | | |
| Health Centers and Posts | 1 950.7 | 2 849.9 | 3 961.4 | 3 592.3 | 5 810.0 | | | |
| Medical Attention | 31.5 | 35.5 | 38.9 | 40.5 | 30.4 | | | |
| Curative Measures | | | | | | | | |
| Medical-Hospital Attention | 11 349.5 | 11 331.4 | 13 813.4 | 16 968.4 | 18 088.1 | 20 330.9 | 22 851.2 | 25 685.6 |
| Current Transfers | 3 763.4 | 4 975.2 | 5 053.2 | 7 066.3 | 5 102.4 | 5 969.8 | 6 984.7 | 8 172.1 |

FORMULA USED: $Pn = Po\ (1+R)^{n-1}$

SOURCE: Balance of Leftovers Fiscal Years 1973/1976.
Accounting Directorate of the State.

TABLE A-4

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE
PROJECTION OF THE OPERATING BUDGET BY TYPE
OF SERVICE FOR 1978-1980
(In thousands of dollars)

| | 1 9 7 8 | 1 9 7 9 | 1 9 8 0 |
|---|---|---|---|
| OPERATING EXPENSES | 62 230.0 | 77 460.0 | 96 148.0* |
| General | 10 141.7 | 12 623.7 | 15 669.3 |
| Administration (Direct, Programming, Administration) | 6 330.4 | 7 941.1 | 9 921.9 |
| Human Resources | 2 490,0 | 3 038.0 | 3 706.0 |
| National Drugstore | 1 321.3 | 1 644.6 | 2 041.4 |
| Preventive Measures | 12 561.1 | 15 635.2 | 19 407.4 |
| Divisions of: | | | |
| Health Education | 53.5 | 66.5 | 82.6 |
| Environmental Sanitation | 493.7 | 614.6 | 762.8 |
| Epidemiology | 725.4 | 902.9 | 1 120.8 |
| Tuberculosis | 342.9 | 426.8 | 529.8 |
| Malaria | 4 604.2 | 5 731.1 | 7 113.7 |
| Maternal/Child | 366.9 | 456.7 | 566.9 |
| Health Centers and Posts | 5 907.7 | 7 353.7 | 9 127.9 |
| Medical Attention | 66.6 | 82.9 | 102.9 |
| Curative Measures | | | |
| Medical-Hospital Attention | 27 906.0 | 34 735.7 | 43 116.0 |
| Current Transfers | 11 621.2 | 14 465.3 | 17 955.2 |

---

* Estimated figure.

SOURCE: National Development Plan.

TABLE A-5

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE
NUMBER AND COSTS OF MEDICAL AND PARAMEDICAL PERSONNEL REPUBLIC OF GUATEMALA
EXECUTED 1973/76
(In thousands of dollars)

| | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | | 1978 | | 1979 | | 1980 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ |
| TOTAL REPUBLIC | 4 041 | 6 260 106.00 | 4 349 | 7 242 299.00 | 4 056 | 7 072 258.00 | 4 801 | 8 876 916.00 | 4 933 | 9 457 116.00 | 5 234 | 10 551 495.00 | 5 618 | 11 902 514.00 | 6 108 | 13 652 882.00 |
| Doctors | 726 | 2 282 652.00 | 839 | 2 560 064.00 | 704 | 1 889 711.00 | 922 | 3 319 236.00 | 928 | 3 700 476.00 | 987 | 4 175 541.00 | 1 049 | 4 711 589.00 | 1 116 | 5 316 453.00 |
| Graduate Nurses | 502 | 939 918.00 | 539 | 1 103 004.00 | 532 | 1 040 174.00 | 553 | 1 381 824.00 | 553 | 1 384 224.00 | 567 | 1 524 878.00 | 580 | 1 679 826.00 | 595 | 1 850 518.00 |
| Auxiliary Nurses | 2 359 | 2 426 880.00 | 2 512 | 2 791 266.00 | 2 465 | 3 525 029.00 | 2 591 | 2 880 192.00 | 2 665 | 2 968 992.00 | 2 748 | 3 122 478.00 | 2 833 | 3 285 898.00 | 2 920 | 3 453 662.00 |
| Sanitary Inspectors | 148 | 231 540.00 | 149 | 333 552.00 | 89 | 180 404.00 | 187 | 362 520.00 | 190 | 373 080.00 | 202 | 420 336.00 | 215 | 473 558.00 | 229 | 533 452.00 |
| Rural Health Technicians | -- | --- | -- | --- | -- | --- | 55 | 112 200.00 | 102 | 208 080.00 | 189 | 385 893.00 | 351 | 715 657.00 | 651 | 1 327 218.00 |
| Supervisory Unit | -- | --- | -- | --- | -- | --- | 52 | 159 600.00 | 52 | 159 600.00 | 52 | 159 600.00 | 52 | 159 600.00 | 52 | 159 600.00 |
| Laboratorists | 219 | 253 236.00 | 235 | 349 417.00 | 188 | 336 134.00 | 349 | 416 484.00 | 350 | 416 484.00 | 394 | 471 646.00 | 442 | 534 115.00 | 447 | 604 657.00 |
| Dentists | 87 | 125 050.00 | 75 | 107 976.00 | 78 | 100 206.00 | 93 | 244 860.00 | 93 | 246 160.00 | 95 | 291 123.00 | 96 | 344 271.00 | 98 | 407 122.00 |

---

FORMULA USED: $Pn = Po\ (1+r)^{n-1}$

SOURCES: -Human Resources and Distribution of Beds in Public Health Institutions; 1973-1976 figures.
-National Budget of Income and Expenditures of the State; 1976 figures.
-For 1977, the figures used were furnished by the Programming Unit of D.G.S.S.

TABLE A-6

MINISTRY OF PUBLIC HEALTH AND SOCIAL ASSISTANCE
NUMBER AND COST OF MEDICAL AND PARAMEDICAL PERSONNEL
DEPARTMENT OF GUATEMALA AND REST OF THE REPUBLIC
EXECUTED 1973/76 AND PROGRAMMED 1977
(In thousands of dollars)

| | 1973 | | 1974 | | 1975 | | 1976 | | 1977 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | | No. | | No. | | No. | | No. | |
| TOTAL OF THE REPUBLIC | 4 041 | 6 260 106.00 | 4 349 | 7 242 299.00 | 4 056 | 7 072 258.00 | 4 801 | 8 876 916.00 | 4 933 | 9 457 116.00 |
| Total Department of Guatemala | 2 678 | 3 759 314.00 | 2 613 | 4 174 586.00 | 2 289 | 3 856 027.00 | 2 245 | 3 722 832.00 | 2 292 | 3 790 320.00 |
| Doctors | 461 | 1 370 604.00 | 460 | 1 366 550.00 | 365 | 817 668.00 | 408 | 1 026 600.00 | 410 | 1 038 528.00 |
| Graduate Nurses | 328 | 630 630.00 | 375 | 768 912.00 | 372 | 693 618.00 | 312 | 779 820.00 | 312 | 779 820.00 |
| Auxiliary Nurses | 1 698 | 1 536 300.00 | 1 520 | 1 697 760.00 | 1 398 | 2 106 865.00 | 1 121 | 1 234 872.00 | 1 163 | 1 285 272.00 |
| Sanitary Inspectors | 23 | 13 500.00 | 49 | 88 752.00 | 2 | 4 440.00 | 61 | 116 640.00 | 63 | 120 480.00 |
| Rural Health Technicians | -- | --- | -- | --- | -- | --- | -- | --- | -- | --- |
| Supervisory Unit | -- | --- | -- | --- | -- | --- | 46 | 144 120.00 | 46 | 144 120.00 |
| Laboratory Technicians | 135 | 139 680.00 | 153 | 224 748.00 | 108 | 206 274.00 | 253 | 282 276.00 | 254 | 282 276.00 |
| Dentists | 33 | 68 600.00 | 36 | 27 864.00 | 44 | 27 162.00 | 44 | 138 504.00 | 44 | 139 824.00 |
| Total Rest of the Republic | 1 363 | 2 500 792.00 | 1 736 | 3 067 713.00 | 1 767 | 3 216 231.00 | 2 556 | 5 154 084.00 | 2 641 | 5 666 796.00 |
| Doctors | 265 | 912 048.00 | 359 | 1 193 514.00 | 339 | 1 072 043.00 | 514 | 2 292 636.00 | 518 | 2 661 948.00 |
| Graduate Nurses | 174 | 309 288.00 | 164 | 331 092.00 | 160 | 346 556.00 | 240 | 602 604.00 | 241 | 604 404.00 |
| Auxiliary Nurses | 661 | 890 580.00 | 992 | 1 093 526.00 | 1 067 | 1 418 164.00 | 1 470 | 1 645 320.00 | 1 502 | 1 683 720.00 |
| Sanitary Inspectors | 125 | 218 040.00 | 100 | 244 800.00 | 87 | 175 964.00 | 126 | 245 880.00 | 127 | 252 600.00 |
| Rural Health Technicians | -- | --- | -- | --- | -- | --- | 55 | 112 200.00 | 102 | 208 080.00 |
| Supervisory Unit | -- | --- | -- | --- | -- | --- | 6 | 15 480.00 | 6 | 15 480.00 |
| Laboratory Technicians | 84 | 113 556.00 | 82 | 124 669.00 | 80 | 130 460.00 | 96 | 134 208.00 | 96 | 134 208.00 |
| Dentists | 54 | 57 280.00 | 39 | 80 112.00 | 34 | 73 044.00 | 49 | 106 356.00 | 49 | 106 356.00 |

SOURCES: -Human Resources and Distribution of Beds in Public Health Institutions; Figures for 1973-1975.
-National Budget of Income and Expenditures of the State; 1976 Figures. For 1977, the figures were furnished by the Programming Unit of the General Directorate of Health Services.

TABLE A-7

PROJECTIONS OF NEEDS OF HEALTH PERSONNEL UP TO 1980 ACCORDING TO THE NATIONAL HEALTH PLAN

| | 1975 | | 1976 | | 1977 | | 1978 | | 1979 | | 1980 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ | No. | $ |
| Doctors | 839 | 5,092,800 | 906 | 5,620,800 | 967 | 6,172,800 | 1,025 | 6,700,800 | 1,086 | 7,276,800 | 1,146 | 7,852,800 |
| Graduate Nurses | 330 | 1,140,000 | 568 | 1,704,000 | 768 | 2,304,000 | 1,007 | 3,021,000 | 1,296 | 3,888,000 | 1,606 | 4,818,000 |
| Auxiliary Nurses | 2,101 | 3,025,440 | 2,640 | 3,801,600 | 3,224 | 4,642,560 | 3,875 | 5,580,000 | 4,561 | 6,567,840 | 5,329 | 7,673,760 |
| Sanitary Inspectors | 380 | 1,140,000 | 568 | 1,704,000 | 768 | 2,304,000 | 1,007 | 3,021,000 | 1,296 | 3,888,000 | 1,606 | 4,818,000 |
| Rural Health Technicians | 143 | 343,200 | 290 | 696,000 | 438 | 1,051,200 | 586 | 1,406,400 | 732 | 1,756,800 | 881 | 2,114,400 |
| Supervisory Unit | 14 | 196,560 | 28 | 393,120 | 43 | 603,720 | 58 | 814,320 | 73 | 1,024,920 | 88 | 1,235,520 |
| Laboratory Technicians | 48 | 115,200 | 59 | 141,600 | 70 | 168,000 | 83 | 199,200 | 94 | 225,600 | 112 | 268,800 |
| Dentists | 67 | 643,200 | 80 | 768,000 | 96 | 921,600 | 114 | 1,094,400 | 130 | 1,248,000 | 151 | 1,449,600 |

Source: National Council of Economic Planification, National Health Plan, 1974.

TABLE A-8

INVESTMENT EXPENDITURES

OF THE MINISTRY OF HEALTH AND SOCIAL ASSISTANCE

(In dollars)

| | 1972 | | 1973 | | 1974 | | 1975 | | 1976 | |
|---|---|---|---|---|---|---|---|---|---|---|
| | PROGRAMMED | EXECUTED | PROGRAMMED | EXECUTED | PROGRAMMED | EXECUTED | PROGRAMMED | EXECUTED | PROGRAMMED | EXECUTED |
| INVESTMENT | 1.657,051 | 636,677 | 2.947,713 | 1.780,495 | 4.798,307 | 3.134,221 | 3.033,842 | 1.794,732 | 14.457,794 | 2.061,338 |
| Health Facilities | ------- | ------- | 1.442,600 | 739,462 | 2.308,647 | 1.795,996 | 266,500 | 131,766 | 9.707,558 | 778,291 |
| Hospitals | ------- | ------- | 1.376,000 | 739,462 | 2.308,647 | 1.795,996 | 266,500 | 131,766 | 5.657,558 1/ | 729,791 |
| Health Centers | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | 2.000,000 2/ | ------- |
| Health Posts | ------- | ------- | 66,600 | ------- | ------- | ------- | ------- | ------- | 2.050,000 2/ | 48,500 |
| Environmental Sanitation | 1.357,051 | 456,977 | 1.285,831 | 831,027 | 2.277,760 | 1.128,822 | 2.220,842 | 1.662,966 | 3.832,296 | 762,173 |
| Urban Potable Water | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| Rural Potable Water | 1.357,051 | 456,977 | 1.285,831 | 831,027 | 2.277,760 | 1.128,822 | 2.220,842 | 1.662,966 | 3.832,296 | 762,173 |
| Excreta Disposal and Urban Sewerage | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| Latrinization Rural Area | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| General Sanitation | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- |
| Development of Human Resources | 300,000 | 179,700 | 220,282 | 210,006 | 110,000 | 107,503 | 496,500 | ------- | 307,500 | ------- |
| Expansion and Reconditioning of the Institute of Health Personnel Training (INDAPS) | 300,000 | 179,700 | 220,282 | 210,006 | 110,000 | 107,503 | 184,500 | ------- | 205,000 | ------- |
| Construction of School of Auxiliary Nurses Jutiapa | ------- | ------- | ------- | ------- | ------- | ------- | 312,000 | ------- | 102,500 | ------- |
| Others | ------- | ------- | ------- | ------- | 101,900 | 101,900 | 50,000 | ------- | 610,440 | 520,874 |
| Rural Telecommunication Syst. | ------- | ------- | ------- | ------- | ------- | ------- | 50,000 | ------- | ------- | ------- |
| Acquisition of Vehicles | ------- | ------- | ------- | ------- | 101,900 | 101,900 | ------- | ------- | ------- | ------- |
| World Food Program | ------- | ------- | ------- | ------- | ------- | ------- | ------- | ------- | 610,440 | 520,874 |

1/ $681,280 correspond to direct Investment, the rest to national reconstruction programs.
2/ Includes only national reconstruction program.
SOURCE: Balance of Leftovers, fiscal years 1972/76, Accounting Directorate of the State.

TABLE A-9

INVESTMENT PROJECTS OF THE MINISTRY OF HEALTH AND SOCIAL ASSISTANCE
UP-TO-DATE COST, ACCUMULATED EXPENDITURE TO DECEMBER 31, 1977
BUDGETED 1977 AND ESTIMATED FOR 1978 AND 1979 AND SUBSEQUENT TO 1979
(In thousands of dollars)

| Project and Executing Unit | Financing Source | UP-TO-DATE COST | | | ACCUMULATED EXPENDITURE TO DECEMBER 31, 1977 | | | 1977 BUDGET | | | 1978 ESTIMATE | | | 1979 ESTIMATE | | | SUBSEQUENT TO 1979 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | FINANCING | | | FINANCING | | | FINANCING | | | FINANCING | | | FINANCING | | | FINANCING | |
| | | Total | Internal | External | Total | Internal | External | Total | Internal | External | Total | Internal | External | Total | Internal | External | Total | Internal | External |
| TOTALS (a + b) | | 55 632.0 | 11 395.0 | 44 237.0 | 3 425.2 | 2 329.2 | 1 096.0 | 17 210.3 | 4 223.7 | 12 986.6 | 21 102.8 | 4 142.4 | 16 960.4 | 13 793.7 | 599.7 | 13 194.0 | 100.0 | 100.0 | — |
| a) Physical Investm. (a.1+a.2) | | 16 937.0 | 4 200.0 | 12 737.0 | 2 625.2 | 1 529.2 | 1 096.0 | 8 830.0 | 1 483.4 | 7 346.6 | 5 481.8 | 1 187.4 | 4 294.4 | — | — | — | — | — | — |
| a.1) Projs. Being Executed | | 14 600.0 | 4 200.0 | 10 400.0 | 2 625.2 | 1 529.2 | 1 096.0 | 7 430.0 | 1 483.4 | 5 946.6 | 4 544.8 | 1 187.4 | 3 371.4 | — | — | — | — | — | — |
| Strengthening National System Rural Health II | AID-520-L-021 | 5 000.0 | 1 600.0 | 3 400.0 | 1 796.0 | 700.0 | 1 096.0 | 3 004.0 | 800.0 | 2 204.0 | 200.0 | 100.0 | 100.0 | — | — | — | — | — | — |
| UNEPAR Rural Aqueducts III | BID-446-SF/GU | 9 600.0 | 2 600.0 | 7 000.0 | 829.2 | 829.2 | — | 4 426.0 | 683.4 | 3 742.6 | 4 344.8 | 1 087.4 | 3 257.4 | — | — | — | — | — | — |
| a.2) New Projects | | 2 337.0 | — | 2 337.0 | — | — | — | 1 400.0 | — | 1 400.0 | 937.0 | — | 937.0 | — | — | — | — | — | — |
| DGSS-Nat. Hospital San Marcos | German Bank | 2 337.0 | — | 2 337.0 | — | — | — | 1 400.0 | — | 1 400.0 | 937.0 | — | 937.0 | — | — | — | — | — | — |
| b) National Reconstruction Investment | | 38 695.0 | 7 195.0 | 31 500.0 | 800.0 | 800.0 | — | 8 380.3 | 2 740.3 | 5 640.0 | 15 621.0 | 2 955.0 | 12 666.0 | 13 793.7 | 599.7 | 13 194.0 | 100.0 | 100.0 | — |
| b.2) New Projects | | 33 695.0 | 7 195.0 | 31 500.0 | 800.0 | 800.0 | — | 8 380.3 | 2 740.3 | 5 640.0 | 15 621.0 | 2 955.0 | 12 666.0 | 13 793.7 | 599.7 | 13 194.0 | 100.0 | 100.0 | — |
| DGSS-Extension of Coverage of Health Services | BID-468-SF/GU | 33 995.0 | 5 995.0 | 28 000.0 | 800.0 | 800.0 | — | 7 205.3 | 2 440.3 | 4 765.0 | 13 371.0 | 2 395.0 | 10 976.0 | 12 618.7 | 359.0 | — | — | — | — |
| UNEPAR- Master Plan for Potable Water | CIDA negotiating | 4 700.0 | 1 200.0 | 3 500.0 | — | — | — | 1 1750.0 | 300.0 | 875.0 | 2 250.0 | 560.0 | 1 690.0 | 1 175.0 | 240.0 | 935.0 | 100.0 | 100.0 | — |

SOURCE: "Three-year Plan of Public Investments 1977-1979." Volume II. National Secretariat of National Council of Economic Planning.

## 4.A. Mission Strategy

### 4.A.1. Future AID Involvement in the Health Sector

USAID is in full accord with the summary findings and the recommendations of the Health Sector Assessment and the general guidelines for the involvement of international organizations. We believe the criteria set forth for donor consideration are important guidelines which should govern future USAID activities in the sector. However because of our long history of involvement in the sector, our position as the financier of the current paramedical training program, including the employment of TSRs in the rural areas, a number of tactical requirements color our approach to pursuing programs within the health sector.

Among the constraints USAID has identified for resolution before considering definitive programming choices in the health sector in Guatemala are the following:

The GOG public health sector record in implementing two previous AID projects has not been good. A combination of administrative ineptitude and lack of full commitment to the paramedical outreach mechanisms have resulted in substantial shortfalls in achieving project objectives.

A short-term complication to extending the rural health delivery system is the diversion of management attention and human resources to the implementation of the IDB facilities construction project. It is not that such construction might not be required in the long term, but the fact is the MOH is strapped to do too many things at once. Given the heavy demands of the IDB project, the MOH would have to increase significantly its managerial capacity before AID could initiate new programs.

The GOG's historical record of providing family planning services through the public sector is an additional constraint to such programs. After nearly 10 years of persuasion and project activity, there has been little change in the GOG's low level of interest in providing public family planning services.

There have, however, been some indications of GOG recognition of policy and administrative inadequacies within the health sector. Most recently, at the November annual meeting of the National Medical Conference, the head of the Health Sector Planning Unit of the National Economic Planning Council reviewed many of the findings of the Health Sector Assessment at a plenary session. There was general concurrence in the accuracy of the findings and the professional conference participants supported many of the recommendations which were presented. Moreover, as pointed out in the Summary Findings Section of the Health Sector Assessment, the official Government plans for the health sector recognize the need for the commitment of additional public resources to the health sector.

USAID feels that at this time future AID assistance to the Guatemalan health sector must be conditioned on certain minimum levels of performance in a number of key areas which would provide assurance of: GOG willingness to make major improvements in the effectiveness of rural health services; the existence of a set of shared objectives between the GOG and USAID; a willingness to commit additional internal resources to the sector and to make necessary improvements in their application and administration; and, in respect to family planning services, a willingness to confront the issue of rapid population growth by increasing the delivery of family planning services through the public health sector.

With such assurances the AID sector strategy would be to improve the low-cost health delivery system that has been initiated in Guatemala, while sharpening its focus on problems which have specific implications for the rural target group. This requires raising the GOG's priority for nutrition, MCH and water and sanitation which address the most critical pattern of disease incidence in the rural areas, as well as strengthening the delegation of important medical tasks, both preventive and curative, to paramedical and other outreach personnel operating outside fixed facilities.

4.A.2. Program Option

Assuming no improvement in the GOG's performance in the health sector, the USAID considered a program option for future assistance.

While avoiding many of the problems previously encountered in working with the official GOG health sector institutions, this option would respond to the Congressional Mandate for providing assistance directed at basic human needs in three critical health sector areas. The essential strategy would be to work outside the MOH to provide assistance in rural water and sanitation, nutrition and family planning. Such a strategy initially seems attractive and feasible. There is an autonomous agency called UNEPAR which has a major responsibility for rural water and sanitation systems. In fact, the IDB is implementing a $7 million loan through UNEPAR, and the Canadians have provided $2.3 Million, both for small rural water systems. These two projects are expected to finance about 290 rural water systems in villages with populations under 2,000, far short of total demand for such systems. In nutrition, the option would include major assistance through the broad range of existing private voluntary organizations combined with nutrition education programming through the Basic Rural Education infrastructure, and work with the Ministry of Agriculture on the nutrition impact of its policies. For population, the current strategy of providing family planning assistance only through APROFAM would be continued and expanded.

Despite the initial attractiveness of these options, except for the continuation of our strategy with APROFAM, USAID does not intend to pursue them because:

The approach ignores the real need for policy and operational improvements within the GOG's health sector activities, especially within the Ministry itself.

To be truly effective, these programs would require complementary support from a health care delivery system, implying a certain amount of policy movement as well.

Our preliminary judgment is that such a program combination would entail higher costs than if it were to be carried out within the public health services system.

The assessment is a joint GOG/USAID effort. The GOG National Economic Planning Council is now in the process of clearing the assessment within the Government, a process which began at the Annual National Medical Conference in November. The Mission hopes that this process will stimulate a dialogue within the GOG and between the GOG and aid donors about the future directions of the public health sector. We plan to use the assessment as an agendum to continue substantive discussions with the current Government, as well as with the one to enter office in July, 1978.

The AID assistance program in health defined for the FY 1979 CP must be considered tentative until the GOG has completed its internal review of the assessment and redefined or reiterated the policies and programs which it wishes to implement. An important part of this review process will be the Government's reactions in the areas which USAID has established as key criteria to govern the nature and extent of our future assistance. Before developing another health project we will require initial actions demonstrating a willingness to make some of the significant reforms recommended in the assessment, including the allocation of additional national resources as may be needed.

In light of the statement of USAID strategy above, and the findings of the assessment, the areas in which we would plan to be receptive to GOG requests for assistance are: public sector involvement in family planning; improving the effectiveness of the health system's impact on rural malnutrition, and increasing the cost effectiveness of rural preventive

medical care. The program areas in which AID would support the GOG's requests for in-depth studies leading to programs include: institutional strengthening; the expansion of family planning services to increasing portions of the population; the health sector portion of a national program to reduce the incidence of malnutrition; improving the effectiveness of the low-cost health delivery system; and capital investment in rural water and sanitation systems.

The sector assessment has not resulted in specific AID program choices or recommendations. We expect that these will be developed within the next several months, as the GOG considers the substance of the assessment and is faced with the performance expectations adduced above for considering project financing. Should the GOG not concur, USAID's alternatives for new investments in the health sector will be circumscribed.