FIELD REPORT

1993 UPDATE: PLANNING FOR WATER AND SANITATION PROGRAMS IN CENTRAL AMERICA

WASH Field Report No. 404
September 1993

WATER AND SANITATION for HEALTH PROJECT

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1993 UPDATE: PLANNING FOR WATER AND SANITATION PROGRAMS IN CENTRAL AMERICA

Prepared for the Bureau for Latin America and the Caribbean,
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by

Gail Rothe

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RELATED WASH REPORTS

Planning for Urban Environmental Health Programs in Central America. Field Report No. 420, September 1993.

Planning for Water and Sanitation Programs in the Andean Region: 1991 Update. Field Reports No. 336, February 1993.

Planning for Water and Sanitation Programs in the Caribbean. Field Report No. 335, February 1992.

Planning for Water and Sanitation Programs in Central America. Field Report No. 334, August 1991.

Planning for Central America Water and Sanitation Programs. Field Report No. 301, June 1990.

Planning for Water and Sanitation Programs in Bolivia, Ecuador, and Peru. Field Report No. 302, June 1990.

Planning for Water and Sanitation Programs in the Caribbean. Field Report No. 303, June 1990.

Planning for Central America Water Supply and Sanitation Programs: Update. Field Report No. 253, May 1989.

LAC Bureau: Planning for Central America Water Supply and Sanitation Programs. Field Report No. 209, May 1987.

Water and Sanitation Sector Profiles of Twenty African Countries. Field Report No. 291, June 1989.

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ACRONYMS

A.I.D.	U.S. Agency for International Development (Washington)
ANDA	*Administración Nacional de Acueductos y Alcantarillados* (Salvadoran national water and sewerage agency)
AyA	*Instituto Costarricense de Acueductos y Alcantarillados* (Costa Rican national water and sewerage agency)
CABEI	Central American Bank for Economic Integration
CAI	Central American Initiative
CAPRE	*Comité de Agua Potable para la Région* (Regional Potable Water Committee with headquarters in Costa Rica)
CARE	International private voluntary organization
CDC	Commonwealth Development Corporation (United Kingdom)
CEPRHI	*Comité Ejecutivo Protector de los Recursos Hídricos* (Salvadoran coordinating committee)
CIDA	Canadian International Development Agency
CIHI	Center for International Health Information
CONAGUA	*Comité Nacional de Agua* (Guatemala National Water Committee)
CONIAPOS	*Comité Nacional de Instituciones de Agua Potable y Saneamiento* (Salvadoran water and sanitation policy-determining committee)
COPECAS	*Comité Permanente de Coordinación de Agua Potable y Saneamiento* (Guatemala permanent water and sanitation coordinating committee)
COSUDE	Swiss International Development Assistance Agency
CRS	Catholic Relief Services
DA	Development Assistance (A.I.D. funding designation)
EEC	European Economic Community
EMPAGUA	*Empresa Municipal de Agua de la Ciudad de Guatemala* (Guatemala City Municipal Water Authority)
ENESF	*Encuesta Nacional de Epidemiologia y Salud Familiar*, Honduras, 1992. (National Survey on Epidemiology and Family Health)
ENSSF	*Encuesta Nacional Sobre Salud Familiar*, Nicaragua, 1993 (National Survey on Family Health)

ESA	external support agency
ESF	Economic Support Funds (A.I.D.)
FDQRI	Integrated Rural Development Program (Nicaragua)
GDP	gross domestic product
GNP	gross national product
GOB	government of Belize
GOCR	government of Costa Rica
GOES	government of El Salvador
GOG	government of Guatemala
GOH	government of Honduras
GON	government of Nicaragua
GOP	government of Panama
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit (German Agency for Technical Cooperation)
HG	Housing Guarantee Loan Program (A.I.D.)
IBRD	International Bank for Reconstruction and Development (World Bank)
IDAAN	*Instituto de Acueductos y Alcantarillados Nacionales* (Panamanian national water and sewerage agency)
IDB	InterAmerican Development Bank
IFAM	*Instituto de Fomento y Asesoría Municipal* (Costa Rica Municipal Training and Technical Assistance Institute)
INAA	*Instituto Nicaragüense de Acueductos y Alcantarillados* (Nicaraguan Institute for Water and Sanitation)
IPTBH	Improved Productivity Through Better Health Project (Belize)
JICA	Japanese International Cooperation Agency
KfW	Reconstruction Loan Corporation (Federal Republic of Germany)
LAC	Bureau for Latin America and the Caribbean (A.I.D.)
MEA-CONARA	National Program for Popular Housing Project (El Salvador)
MOH	Ministry of Health

NGO	nongovernmental organization
OECF	Overseas Economic Cooperation Fund (Japan)
PAHO	Pan American Health Organization (unit of World Health Organization)
PLANSABAR	*Planificacion Nacional de Saneamiento Básico Rural* (El Salvador Basic Rural Sanitation Planning Organization, an entity of the Ministry of Public Health)
PSIP	Public Services Improvement Project (El Salvador)
PVO	private voluntary organization
RHUDO	Regional Housing and Urban Development Office (A.I.D.)
ROCAP	Regional Office for Central America and Panama (A.I.D.)
SEGEPLAN	Guatemala's General Secretariat of the National Council for Economic Planning
SANAA	*Servicio Autónomo Nacional de Acueductos y Alcantarillados* (Honduran National Autonomous Agency for Water and Sewerage)
UNDP	United Nations Development Programme
UNEPAR	*Unidad Ejecutora del Programa de Acueductos Rurales* (Guatemala Implementing Unit for Rural Water Programs, an entity of the Ministry of Public Health)
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development (overseas missions)
VLWS	Village Level Water and Sanitation Project (Belize)
WASA	Water and Sewerage Authority (Belize—entity of the Ministry of Energy and Communications)
WASH	Water and Sanitation for Health Project

EXECUTIVE SUMMARY

This report is the fourth update of a Water and Sanitation for Health (WASH) Project study of the water and sanitation sector in Central America; the first study was carried out in 1987, and updates were issued in 1989, 1990, and 1991. The report has been prepared for the Latin American and the Caribbean/Health and the Research and Development/Health Bureaus of the U.S. Agency for International Development (A.I.D). The purpose of the report is to use available data to document the current (1992) availability of water supply and sanitation services in the seven countries of Central America and Panama and to analyze ongoing and proposed investments to estimate the additional funding needed to meet proposed targets. The attempt to document differential coverage within the urban areas was not successful due to the lack of representative information on the peri-urban areas.

Along with the update, the study included a parallel survey of existing data in the attempt to document water supply and sanitation-related environmental problems in three urban areas of Central America: Guatemala City, Guatemala; San Salvador, El Salvador; and Tegucigalpa, Honduras. The results of the urban assessment are documented separately in WASH Field Report No. 420, "Planning for Urban Environmental Health Programs in Central America."

Methodology

The definitional framework employed in the update is the same one used in previous studies. Water and sanitation coverage is a tally of the population with access to services, and is expressed as a percentage of the total estimated population. The following definitions are used:

- Urban areas are defined as population centers of 2,000 or more.
- Water supply coverage includes people who receive water from a direct connection, from a water system outlet (standpipe or public fountain) within 200 meters of their homes, or from water vendors.
- Sanitation coverage includes those with an in-house or in-compound sewerage connection, septic tank, or latrine.

This report does not mark distinctions in the quality of service provided. All persons reported to have coverage are considered to have at least minimal access to water and sanitation services, as defined.

Data used for the coverage estimates came from a variety of sources including overseas U.S. Agency for International Development missions (USAID), the Pan American Health Organization (PAHO), national censuses, national surveys, and ministries of planning. Some of these sources defined terms differently, especially classifications of rural/urban and access to water. WASH attempted to reconcile these differences whenever possible.

Results

Percentages for water supply and sanitation coverage in 1992 are compared for the seven countries (see Figure 1). Access to water supplies in the region ranges from a low of 47 percent in El Salvador to a high of 95 percent in Costa Rica. Access to sanitation services ranges from 49 percent in Guatemala to 97 percent in Costa Rica. These four rankings are unchanged from 1990, with the exception of Nicaragua, which had the lowest sanitation coverage in 1990.

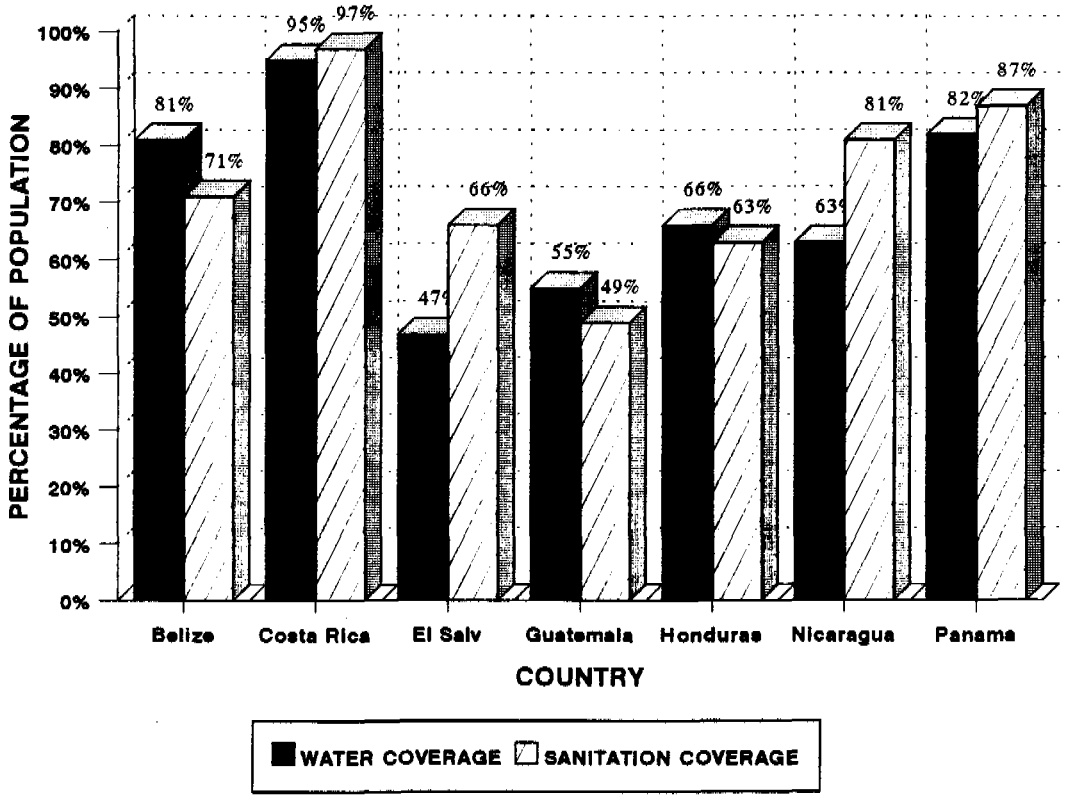

Figure 1

1992 Water and Sanitation Coverage (combined urban and rural)

Of a total population of 30 million in the region, an estimated 63 percent have access to water supplies and 67 percent have access to sanitation (see Figure 2). In other words, roughly one in three people in the region still lacks access to these basic services. In a breakdown of rural and urban access, the urban sector, with 91 percent water coverage and 86 percent sanitation coverage, continues to rank well ahead of the rural sector, with 39 percent and 51 percent coverage, respectively. The region is still more rural (53 percent) than urban, and according

to these figures, almost 10 million rural residents lack access to water and 8 million to sanitation. This contrasts to the 1.2 million urban residents who lack access to water and almost 2 million who lack access to sanitation.

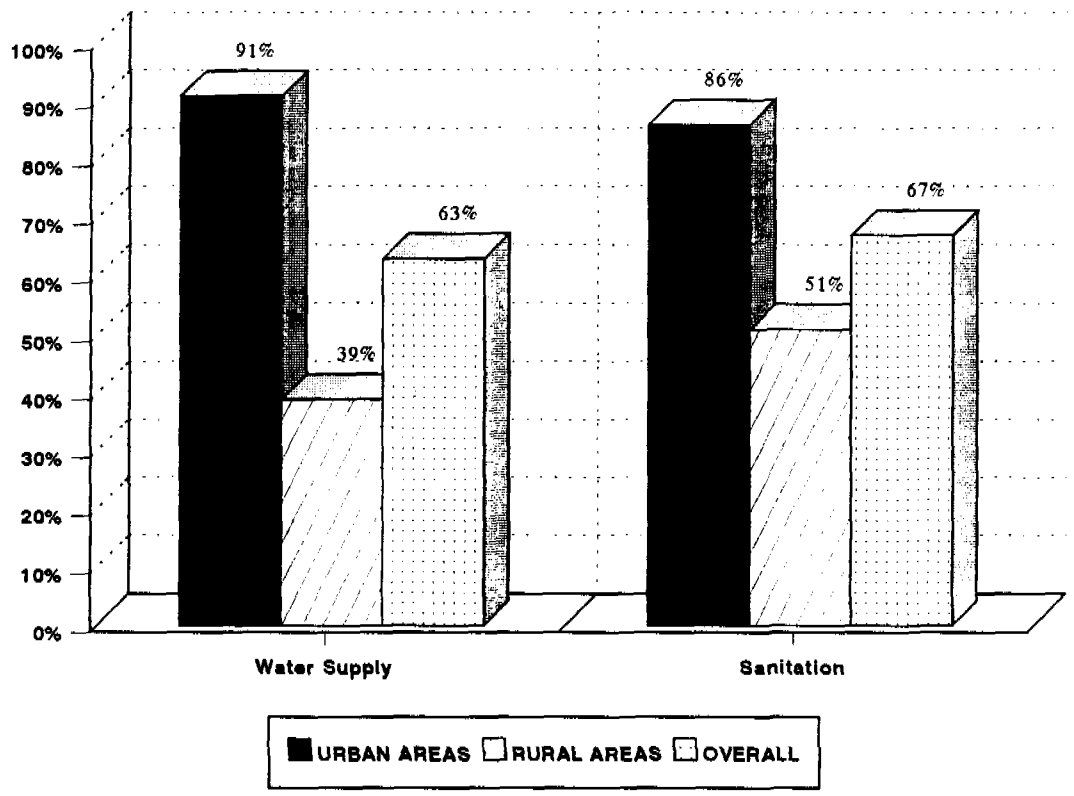

Figure 2

Central America and Panama—1992 Regional Coverage

The WASH coverage targets referenced in this report are goals for urban and rural populations with access to water and sanitation facilities for each country. The targets, which are expressed as percentages of the total population, are estimates of the progress required by 1995 if

universal coverage is to be achieved by the year 2020. These goals do not necessarily reflect each country's current development plans for the sector.

The 1995 WASH targets seek to raise regional water supply coverage from the current 63 percent to 70 percent and the sanitation coverage from 67 to 69 percent. Based on current population trends, approximately 4 million more people will require access to water and 2.5 million to sanitation services in the next three years.

The funding needed to provide 4 million people with water supply access and 2.5 millon people with sanitation facilities by 1995 is more than $800 million (see Table 1). This figure was calculated by multiplying the number of additional people to receive coverage by per capita costs of providing services in each country. Unit costs are based on figures developed by PAHO.

Table 1

Estimated Funding Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply			Sanitation			Total
	Total	Urban	Rural	Total	Urban	Rural	
Funding Required	482,081	178,128	303,953	359,134	298,485	60,649	841,215
Current Commitments*	160,750	73,642	87,108	63,007	42,655	20,352	223,757
Deficit	338,011	118,294	219,717	308,662	265,206	43,456	646,673

**Includes only those commitments that will expand coverage to meet the WASH target levels. This pool excludes $29,399 in funds that exceed the requirements to meet the WASH goals in selected subsectors. Funding needs for these subsectors have been included as zeros.*

Required regional investments broken down by subsector are $178 million for urban water supply, $304 million for rural water supply, $298 million for urban sanitation, and $61 million for rural sanitation. Greater costs for achieving urban area coverage, despite much smaller numbers of people requiring access to meet the targets, are primarily the result of higher unit costs of providing sanitation in urban areas (often sewer systems) as compared to rural areas (usually latrines).

WASH's estimate of $224 million of external support agencies' current funding commitments for the region includes only investments for programs that extend coverage to people currently without basic services and excludes efforts in areas such as system rehabilitation and institutional strengthening. Committed funding represents only one-quarter of the total amount needed to meet the 1995 targets. The shortfall in two countries—Honduras and

Guatemala—accounts for three-quarters of the total deficit of $647 million. In addition, with access to services still very low in El Salvador and Nicaragua, these four countries will require the greatest attention.

The $224 million currently committed is roughly equal to the amount committed in 1990; external investments appear to have remained stable. There is little indication from donors that investments will rise to the level needed to meet the targets. Meeting the 1995 targets, and ultimately attaining universal coverage, will depend on more innovative financing mechanisms.

Conclusion

This update focuses, as did previous reports, on one aspect of water and sanitation: access to water and sanitation facilities. In the last 12 years for the region as a whole, water coverage rose from 56 to 63 percent while sanitation coverage rose from 42 to 67 percent. These increases represent 6.6 million people who have gained access to water supplies and 11 million who have gained access to sanitation facilities. The progress is all the more remarkable when viewed against the background of economic and political turmoil in the region.

However, in spite of this progress, the findings of the survey of three cities in the region (WASH Field Report No. 420) present a more complicated picture in terms of health impact than the provision or absence of water and sanitation facilities would indicate. First, these coverage figures, like all summary data, mask as much as they reveal. Evidence from the urban study suggests that those living in the peri-urban areas were simply not counted; the coverage figures reported here for the urban areas may be substantially inflated.

More important than the coverage figures, which are only indirect measures of health status, are the increased health risks caused by the contamination of the urban environment. The evidence from the urban survey suggests that environmental contamination already is a health risk to urban populations, and that the risk undoubtedly will rise over the coming years as human, solid, and hazardous wastes concentrations increase in the air, water, and home environments.

Therefore, despite improvements in the last 12 years, the health impact of deteriorating water sources and living conditions has and will continue to undermine any advances in the provision of water and sanitation services. The future of water and sanitation programming, particularly in the urban areas, must be viewed within the broader environmental health context.

Chapter 1

INTRODUCTION

1.1 Purpose and Scope

This report is the fourth update of a WASH Project study of the water and sanitation sector in Central America; the first study was carried out in 1987, and updates were issued in 1989, 1990, and 1991. The report has been prepared for the Health Offices of the LAC and R&D Bureaus of A.I.D. The report covers the rural and urban sectors in Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama through the end of 1992.

The purpose of the report is to use available data to document the current availability of water supply and sanitation services in Central America and to assess ongoing and proposed investments to estimate the funding required to meet specified targets for coverage. The report does not attempt to incorporate the cost recovery of utilities, the movement towards local control and financing of services, or hygiene and behavioral change, as important as these issues are to the sector. The report purposely excludes all funding for the sector that does not directly provide for the construction of water supply and sanitation services. In addition, WASH recognizes problems that undermine the validity of the data as well as the inability to estimate the direction or magnitude of the possible error. In spite of these limitations, the report uses the methodologies established in the first report and the best available data to provide an approximation of the status and progress of the sector.

In addition to analyzing the water and sanitation sector as in years past, this study also had two new objectives. The first objective was to contrast water and sanitation services in formal and informal[1] sectors of urban areas. Unfortunately, although the informal (or peri-urban) areas are receiving more attention than in years past, no representative coverage data were available. Therefore, peri-urban coverage could not be broken out from overall urban data.

The second objective was to survey existing data to document water supply and sanitation-related environmental problems in three urban areas in Central America: Guatemala City, Guatemala; San Salvador, El Salvador; and Tegucigalpa, Honduras (see Appendix A for the complete scope of work). Although the estimates of the coverage and funding gaps provide a much-needed point of reference for planning in the sector, the current trends in urbanization, in particular the growth and environmental contamination of the peri-urban areas, led to the separate review of data in the following sectors: solid and hazardous wastes, water pollution, food hygiene, and morbidity and mortality. The results of this part of the study are reported

[1] Informal city sectors are defined as having one or more of the following: illegal squatter settlements, few or no public services, little or no infrastructure, substandard housing, and inhospitable land such as steep hillsides, flood plains, or proximity to solid waste dumps. Several different terms—peri-urban areas, *barrios marginales, asentamientos populares urbanos, colonias illegales*—were used for these areas in the three countries. The different terms are used interchangeably in this report.

in a separate document, WASH Field Report No. 420, "Planning for Urban Environmental Health Programs in Central America."

1.2 Definitional Framework

The definitions employed in this report, the same as those used in the previous studies, provide the framework for the analysis.

1.2.1 Coverage

Water and sanitation coverage is expressed as the percentage of the population with access to at least minimal services. The number of people in each category is also given. The following definitions are used:

Urban and Rural Populations: Urban areas are defined as population centers of 2,000 or more.

Water Supply Coverage: Water supply coverage includes people who receive water from a direct connection, from a water system outlet (standpipe or public fountain) within 200 meters of their homes, or from water vendors.

Sanitation Coverage: Sanitation coverage includes those with an in-house or in-compound sewerage connection, septic tank, or latrine.

Although all persons reported to have coverage are considered to have at least minimal access to the services defined above, certain inadequacies with the definitions may lead to a bias in the estimates. The data used from several countries were collected using different definitions and could not be recollected nor reanalyzed. For example, the population cut-off for urban areas was not always 2,000; as a consequence, the urban and rural population criteria were not consistent across all countries. Moreover, the definitions employed may not be appropriate for certain populations. For example, urban families may not be adequately served unless the water source is in the house or immediately outside; however, the definition employed allowed for a 200-meter radius.

These definitions also fail to make distinctions regarding the usage of facilities, the maintenance of facilities, health and hygiene behavioral aspects, or quality of coverage. For example, some cities have water for only a few hours a day. In addition, some facilities are inadequate from an environmental health standpoint. Human excreta, pesticides, and solid and hazardous wastes contaminate the soil and may leech into ground waters; untreated domestic and industrial wastewaters are dumped into surface waters. As a result, water supplies are often of such poor quality that they do not meet standards for potable water in developed countries. Throughout the region, particularly in rural areas, many people have access only to rudimentary facilities, such as uncovered, poorly constructed latrines that are not maintained nor used consistently. Coverage levels would be far lower if access to water supplies was

redefined to access to uninterrupted supplies of quality water, and if access to sanitation included the proper construction, use, and maintenance of sanitary facilities.

Therefore, inadequacies in the definitions most often lead to an overestimation in the number of persons with coverage. Nevertheless, these definitions were retained from the previous reports for several reasons. First, these definitions were used to maintain consistency with earlier estimates to be able to assess trends in the coverage. Second, the existing data rarely incorporated the degree of complexity described above. Third, the original purpose of the reports was to provide a rapid, timely, overall assessment of the water and sanitation sectors as a starting point for the more detailed planning and program implementation.

1.2.2 1995 Targets

WASH's targets, which establish the minimal coverage to be attained by 1995, were developed in the 1989 update as percentages of urban, rural, and overall populations. They have been extrapolated from a model that projects full coverage in each subsector of each country by 2020. These projections have been updated to reflect current population growth rates.

The WASH targets were not developed with country participation and do not reflect specific country goals. They are intended to assist A.I.D. in tracking the expansion of water and sanitation facilities and in focusing attention on the investment needed to increase coverage for urban and rural populations in these countries.

1.2.3 Excluded Funds

The investment analysis only includes expenditures from the external support agencies for projects that expand the number of persons with access to water and sanitation services. Consequently, funding for a number of projects, particularly some of the large loans made by the Inter-American Development Bank (IDB) and the World Bank, have not been included in their entirety. Many of these loan programs support the rehabilitation or upgrading of existing systems or the construction of off-site facilities (indirect user facilities, such as treatment plants, dams, or reservoirs) to improve or sustain existing services. Frequently, these projects do support some expansion of systems and the number of people with access. Therefore, as in the previous reports, a fraction of the estimated disbursements from these programs has been considered as supporting the extension of coverage.

Excluded from the funding analysis are non-infrastructure projects that support institutional development of national and municipal water and sewerage agencies; training in management, operation, and maintenance; technology transfer; and health and sanitation education. WASH recognizes that these projects are critical in terms of the overall impact on human health, but in keeping with previous reports, because they do not directly provide for service expansion, they are excluded from the analysis.

Where details of disbursement schedules were not available, WASH has estimated remaining expenditures from the best available information.

1.3 Sources

The information needed for this report falls into four main groups: water supply and sanitation coverage, investments in the water and sanitation sector, per capita costs for providing water and sanitation facilities, and basic country background information. The sources used for these data are summarized below.

1.3.1 Access to Water and Sanitation

In past reports, the overseas missions in each of the seven countries and A.I.D.'s Regional Housing and Urban Development Office (RHUDO)/Tegucigalpa provided coverage information. In this report, WASH received coverage data from one mission (Belize) and, for the other six countries, derived the coverage figures based on estimates from one or more of the following: recent estimates from PAHO, 1992 national census data, 1992-93 national surveys, ministry of planning estimates or projections, and the judgments of in-country experts. Details on the sources used for each country are included in Appendix B.

1.3.2 Investments in the Water and Sanitation Sector

Donors involved in the water and sanitation sector in Central America provided information on their planned expenditures for the 1993-95 period. In many cases, the donors could not provide the funding information in the breakdown requested, and WASH was required to make estimates based on the information available and the methods used in previous reports. More information on the individual funding agencies and their proposed investments is included in Appendix B.

1.3.3 Per Capita Costs for the Construction of Facilities

To determine the shortfall in investments, an estimate of per capita costs for construction of water and sanitation facilities was required. Data on unit costs for construction are based on data provided by PAHO. Costs used in the 1990 WASH report (Field Report 334) were inflated by 5 percent per year and were reviewed and approved by PAHO.

1.3.4 Country Backgrounds

The majority of information on population, population growth rates, infant mortality rates, under-five mortality rates, and life expectancy were obtained or calculated from information provided by the A.I.D.-sponsored Center for International Health Information (CIHI). For Nicaragua, the infant and under-five mortality rates were obtained from the recent (1992-93) National Survey of Family Health; for Honduras, these two rates were obtained from the Epidemiology and Family Health Survey (1991-92). Infant and under-five mortality rates are defined as the number of deaths (under age one and under age five, respectively) per 1,000 live births.

CIHI provided population figures for 1992 and 1995 as well as 1992 growth rates. The 1992 rural/urban breakdown and rural/urban growth rates were calculated from trend data provided by CIHI. For Belize, the 1992 total, rural, and urban population figures were taken from PAHO's assessment of coverage of water and sanitation services; the 1995 population figures were those used in the WASH Field Report 334.

Mortality rates due to infectious/parasitic disease and diarrheal/intestinal diseases were obtained from PAHO's 1990 Health Conditions in the Americas. As noted, these data were not available for Nicaragua. These rates represent the number of deaths from these diseases per 100,000 persons.

Adult literacy rates, gross national product (GNP) per capita, GNP per capita annual growth, and the average annual inflation rate were obtained from the 1992 World Development Report published by the World Bank. Where more recent data were not available, the 1990 figures used in WASH Field Report 334 were retained. This was the case for Belize for all four indicators and for Nicaragua for adult literacy and GNP per capita.

Currency exchange rates were obtained from the Bank of America Global Trading, as cited in the *Wall Street Journal*, May 3, 1993, and reflect official and free-market exchange rates on April 30, 1993.

1.4 Methodology

1.4.1 Coverage

Coverage was determined for each of the four subsectors. In past reports, overseas missions in each of the seven countries and RHUDO/Tegucigalpa provided coverage information. For this report, coverage data were provided by one mission (Belize); WASH derived the other coverage figures from estimates from one or more of the following: recent estimates from PAHO, 1992 national census data, 1992-93 national surveys, ministry of planning estimates or projections, and the judgments of in-country experts. Details for the calculation and justification of the coverage level reported for each country are provided in Appendix B.

The validity of the estimates varies depending on the source and the extent to which available data could be reconciled with the definitions used by WASH. At the outset of the current study, there was a plan for urban coverage data to be broken down by formal and informal sectors. Unfortunately, although many studies exist on informal (or peri-urban) areas, since representative coverage statistics were unavailable, peri-urban coverage could not be broken out from the data.

1.4.2 Targets

The targets were calculated by WASH and do not necessarily reflect each country's development plans for the sector.

In 1990, WASH set coverage targets for 1995 in each subsector. The total number of persons targeted for coverage in each subsector was calculated by estimating the 1995 population through a simple linear extrapolation (increasing the existing population by the current growth rate for each year between 1990 and 1995), then the percentage target was multiplied by the projected population.

1.4.3 Investments

The total costs for investments required in the water and sanitation sector to meet the 1995 goals were calculated, as in the previous reports, by multiplying the number of additional people needing coverage by the unit costs of providing services. The information on funding already committed to the sector was obtained from donors. Because these are projected investments over the three-year period 1993-95, funding plans were not always finalized, which led to the use of an educated guess as to the amount that would be disbursed, over what period, and for which subsector. Few donors had commitments for 1995. With few exceptions, the information was not readily accessible in the form WASH requested.

The number of people with access to services in each subsector in 1992 was then deducted from the number targeted for coverage in 1995, to provide an estimate of the population requiring additional water and sanitation services. For each subsector, the population target was then multiplied by an average per capita unit cost to estimate the total investment needed.

Finally, the funding shortfall was calculated by subtracting the total commitments for coverage-expanding projects in each subsector from the total investment needed to attain targets.

1.5 Report Organization

Chapters 2-8 of this report present the update to the previous reports for the coverage and investment data for each of the seven countries. Chapter 9 provides the same information, but combined for the region as a whole. Chapter 10 gives an overview and ends with a review of the lessons learned by WASH.

1.6 Additional Planning Reports

A separate WASH report, "Planning for Urban Environmental Health Programs in Central America" (Field Report No. 420), presents the background and results of the survey of existing environmental health data in the cities of Guatemala, San Salvador, and Tegucigalpa.

The LAC Bureau has also issued reports on water and sanitation in the Andean countries of Bolivia, Ecuador, and Peru and the Caribbean countries of Barbados, the Dominican Republic, Grenada, Haiti, and Jamaica.

Chapter 2

BELIZE

2.1 Country Background

COUNTRY PROFILE
Belize

Population (1992)	
Total	196,000
Urban	102,000 (52%)
Rural	94,000 (48%)
Population Growth Rate (1991)	3.2
Infant Mortality Rate (1991)	35
Under 5 Mortality Rate (1990)	43
Mortality Rate due to Infectious and Parasitic Diseases (1990)	31.1
Mortality Rate due to Diarrheal Diseases (1990)	16.2
Life Expectancy (1991)	70
Adult Literacy Rate (1990)	92%
GNP per Capita (1989)	$1,720
GNP per Capita Annual Growth (1965-88)	2.4%
Currency	Belize Dollar 2 = US$1
Average Annual Inflation (1980-88)	2.2%

Belize has Central America's smallest population, with less than 1 percent of the region's inhabitants. It is also by far the least densely populated, with 8.5 persons per km^2. This compares to an average of 60 for the region and to a high of 253 for El Salvador, a country of equal land mass. Economic and health statistics for the country generally place Belize between the more prosperous countries of Costa Rica and Panama and the poorer countries of Guatemala, Nicaragua, El Salvador, and Honduras. Belize's population is a mix of Mayan Indian (20 percent), creoles of African descent (40 percent), mestizos (20 percent), Europeans (10 percent), and Black Carib Indians (10 percent). In the 1980s, the population increase from the relatively rapid natural population growth and from immigration from other Central American countries and the Caribbean was substantially offset by emigration, primarily to the United States.

Belize has an agricultural-based economy with major exports of sugar, citrus, and bananas. Its per capita GNP of $1,720 ranks only slightly below Panama ($1,830) and Costa Rica ($1,900). After the implementation of basic structural reforms in the early 1980s, the economy experienced a real gross domestic product (GDP) growth of over 10 percent in the late 1980s; however, growth has declined in the 1990s. Foreign aid for development expenditures is primarily provided by two donor countries, the United States and the United Kingdom.

The government of Belize (GOB) is committed to providing health services to the entire population, using community participation and intersectoral coordination as key elements of its health plan. Approximately 87 percent of the population is covered by health services provided by the government's national network of health centers; 55 percent have direct access, while 32 percent are served through periodic visits and mobile clinics. Unlike most of its neighbors, Belize does not have a high death rate from diarrheal and intestinal diseases.

According to PAHO, deaths due to intestinal infections have dropped 60 percent over the past decade.

The country is divided into six states, each served by a water and sanitation project. Two national agencies are responsible for work in the water and sanitation sector: the Water and Sewerage Authority (WASA), which provides engineering and technical support, and the Ministry of Natural Resources, which is responsible for the implementation of all water and sanitation projects.

2.2 Current Coverage Levels

Estimates of past and current (1992) access to water supply and sanitation facilities, or coverage, is compared to the 1995 WASH targets for the four subsectors—urban water supply, rural water supply, urban sanitation, and rural sanitation—in Tables 2 and 3. Belize currently provides water services to 98 percent of its urban population, whereas 96 percent of urban dwellers have access to sanitation facilities. In rural areas, 62 percent have access to potable water and 43 percent have access to sanitation facilities.

These coverage figures are 3-30 percent higher than WASH's 1990 estimates, which were, with the exception of the urban water subsector, 22-59 percent lower than the 1989 estimates. At least a part of these differences are very likely a result of a change in survey methodology rather than any real improvement or decline in coverage (see Figures 3 and 4).

Table 2

Belize—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	146	99	68%	73	71	97%	73	28	38%
BASELINE 1984	156	98	63%	78	71	91%	78	27	35%
1986	162	112	69%	83	79	95%	79	33	42%
1988	174	125	72%	89	80	90%	85	45	53%
1989	180	150	83%	95	86	91%	85	64	75%
1990	184	138	75%	97	92	95%	87	46	53%
1992	196	158	81%	102	100	98%	94	58	62%
TARGETS FOR 1995	214	187	87%	112	104	93%	102	83	81%

Population figures are rounded to the nearest thousand.

Table 3

Belize—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	146	96	66%	73	43	59%	73	53	73%
BASELINE 1984	156	97	62%	78	48	62%	78	49	63%
1986	162	124	77%	83	69	83%	79	55	70%
1988	174	145	83%	89	80	90%	85	65	76%
1989	180	154	86%	95	84	91%	85	68	80%
1990	184	82	45%	97	64	66%	87	18	21%
1992	196	138	71%	102	98	96%	94	40	43%
TARGETS FOR 1995	214	190	89%	112	104	93%	102	86	84%

Population figures are rounded to the nearest thousand.

In fact, the 1990 data, which in three of the four subsectors are dramatically inconsistent with the trends, were drawn from a special study—CARE's 1990 Situational Analysis—and would explain the wide fluctuations. The 1990 data may indeed better represent the situation according to WASH's definitions, but in any case, quick conclusions on the apparent trends in coverage are not justified, given the large (but unmeasured) margin of error in all the estimates of coverage. There does appear to have been gradual improvement over the last decade. More conclusively, the figures show greater coverage in the urban areas and, fairly consistently, greater access to water over sanitation services.

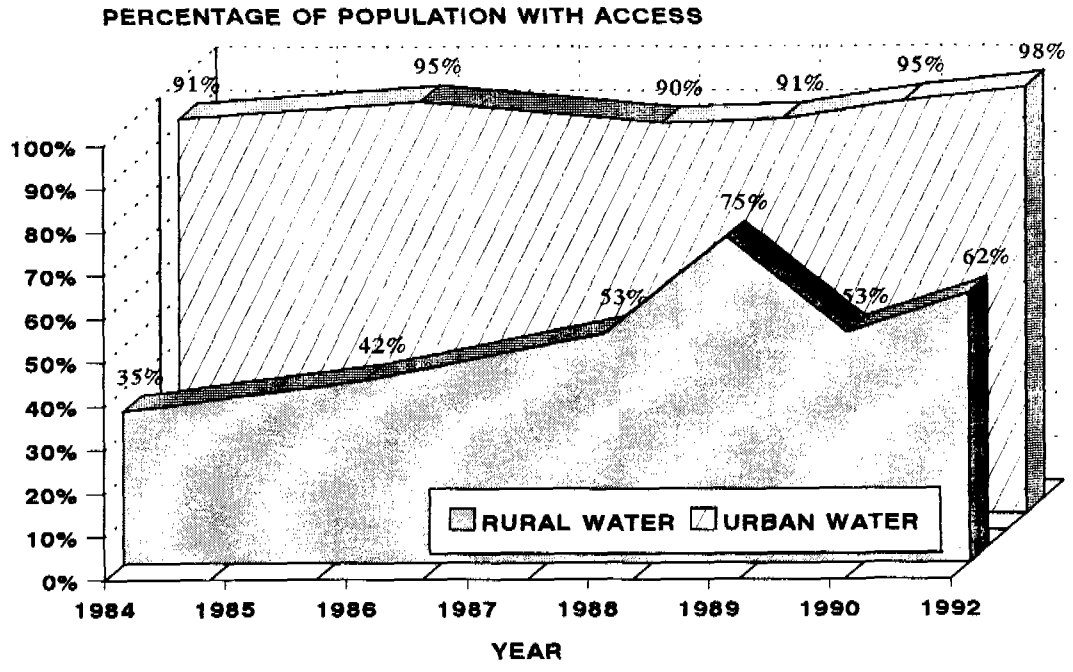

Figure 3

Belize—Urban and Rural Water Supply Coverage

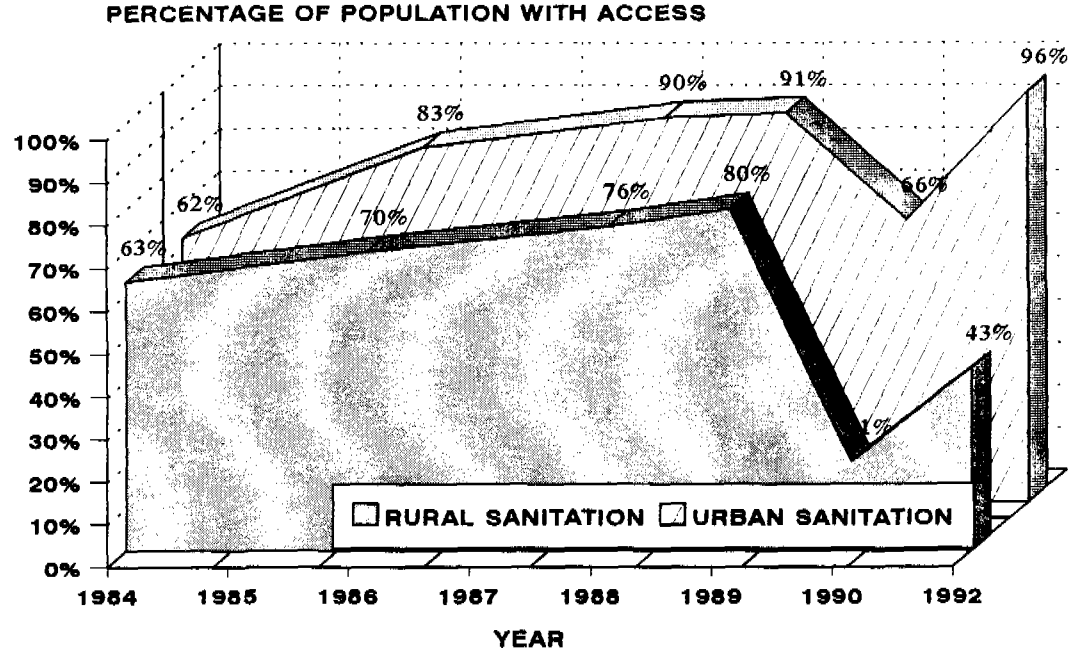

Figure 4

Belize—Urban and Rural Sanitation Coverage

2.3 Investments in Water and Sanitation

The investments that are currently committed by the external funding agencies for the extension of water and sanitation services (see Table 4) are less than one-third of that reported in 1990. The Canadian International Development Agency (CIDA), once a major donor to the Belize City project, has terminated its funding. Only two agencies, CARE/USA and UNICEF, now have firm commitments in the sector. Moreover, CARE does not plan to provide funding after June 1993, and no additional funding agencies plan new investments.

Table 4

Belize—Funding Commitments by Sector, 1993-94 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
CARE		29		20	49
UNICEF		155		463	618
TOTAL		184		483	667

Based on the 1992 coverage figures, the additional investment required to meet the 1995 target is over $10 million (see Table 5 and Figure 5). Most (90 percent) of this amount will be required in the two rural subsectors. Although the total amount is relatively small, current commitments account for only 6.5 percent of the total required. The current plans of the external support agencies (ESAs) are not promising, and unless local agencies find more innovative financing for the extension of services, Belize will not reach 1995 coverage goals.

Table 5

Belize—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	187	104	83	190	104	86	N/A
Coverage in 1992	158	100	58	138	98	40	N/A
Required Increase	29	4	25	52	6	46	N/A
Estimated Unit Cost (US $ Per Capita)	N/A	172	172	N/A	114	114	N/A
Estimated Total Cost to Meet 1995 Targets (000s)	$4,988	$688	$4,300	$5,928	$684	$5,244	$10,916
Firmly Committed Investments (000s)*	$184	$0	$184	$483	$0	$483	$667
Projected Funding Shortfall (000s)**	$4,804	$688	$4,116	$5,445	$684	$4,761	$10,249

**Includes only those investments to increase coverage.*

***The shortfall calculation assumes that funding in excess of a subsector's requirement for the 1995 targets will remain allocated to that subsector, allowing the expansion of services to exceed WASH's targets.*

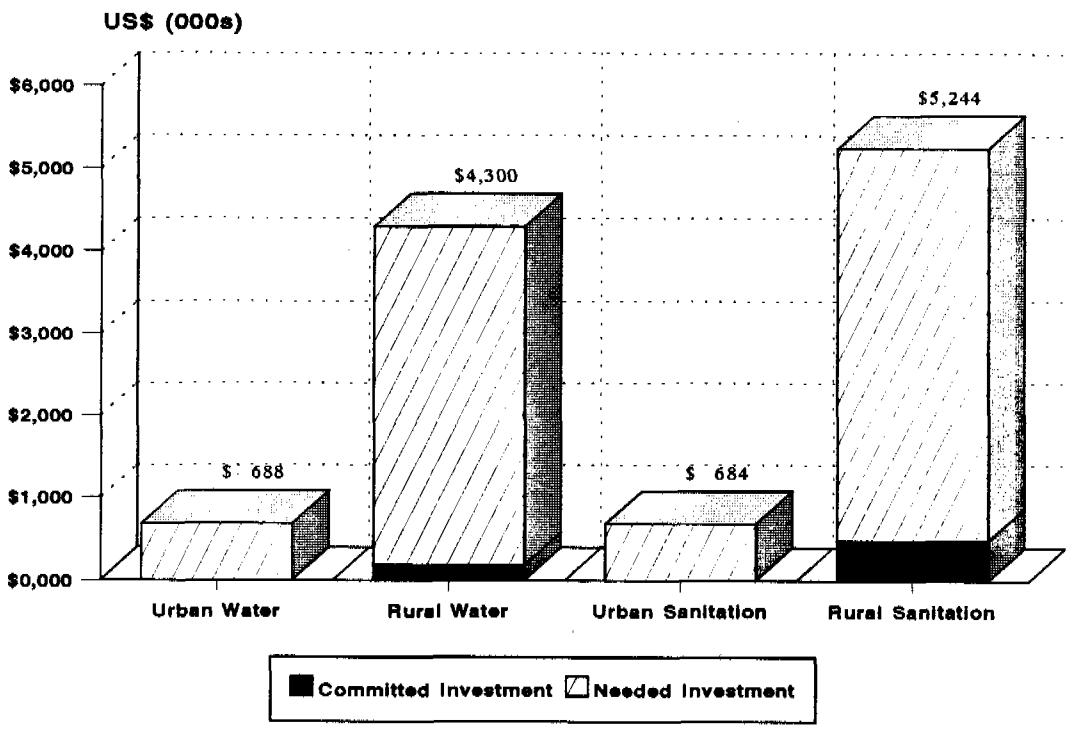

Figure 5

Belize—Investment Needed to Meet 1995 Targets

2.4 Meeting the 1995 Water and Sanitation Targets

In the 1990 Planning Document for Central America, WASH established four targets for 1995. According to the 1992 coverage figures, the targets for the urban water and sanitation subsectors have been met (see Figure 6). Meeting the percentage targets by 1995 will require maintaining this level of coverage in the urban areas, while increasing coverage in rural subsectors. In all four subsectors this will require an increase in the absolute number of people served (see Figure 7).

Urban Water and Sanitation

According to 1992 coverage estimates, Belize has surpassed the 1995 coverage targets for urban water supply by 5 percent and for urban sanitation by 3 percent. However, between 1993 and 1995, the urban population will grow by an additional 10,000 people, and unless additional water services are provided for 4,000 people and additional sanitation services for 6,000 people before 1995, the coverage levels will fall below the 1995 targets.

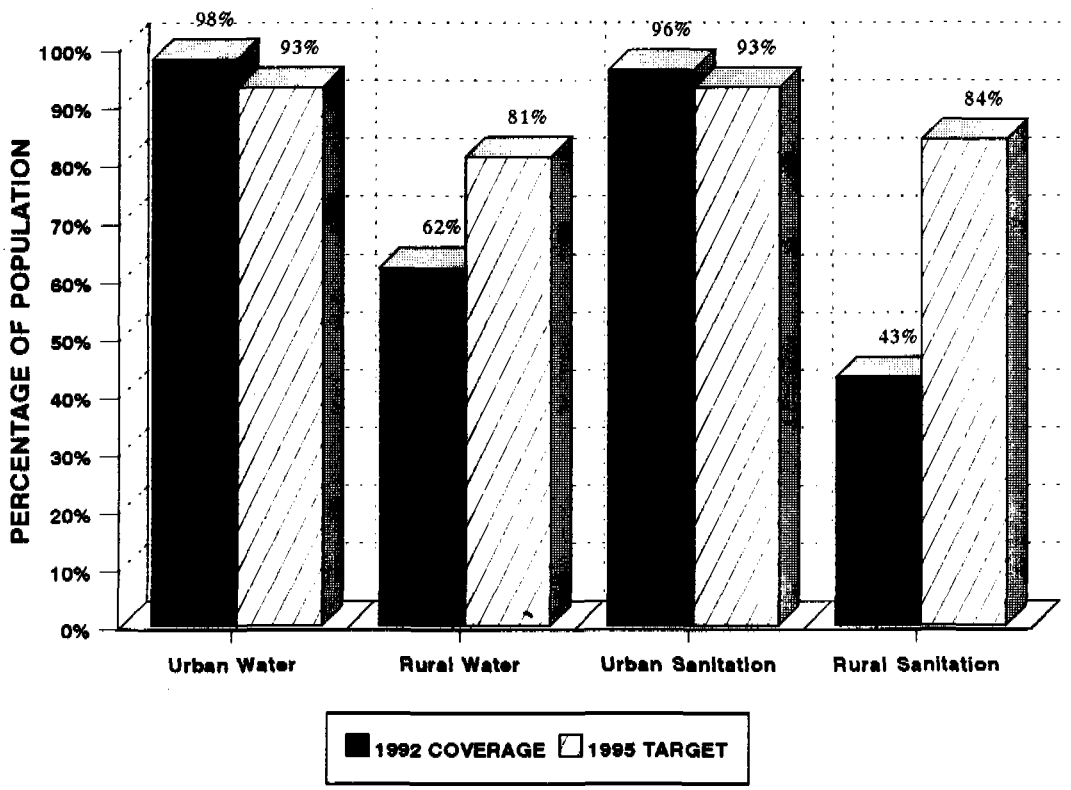

Figure 6

Belize—1992 Coverage and 1995 Targets (percent of population)

Obviously, measured in numbers of people, Belize requires a relatively small increase in the provision of services to meet WASH's targets for urban areas. In 1990, WASH estimated that in order to reach the 1995 urban targets $1.9 million and $4.2 million were required for the expansion of water systems and sanitation facilities, respectively. Of this total investment of $6.1 million, $4.9 million (or $1 million annually) was considered the shortfall. Current estimates are that only $1.4 million will be needed in the two subsectors over the next three years, none of which is committed at this time. This represents an estimated $460,000 annual shortfall for the urban sector.

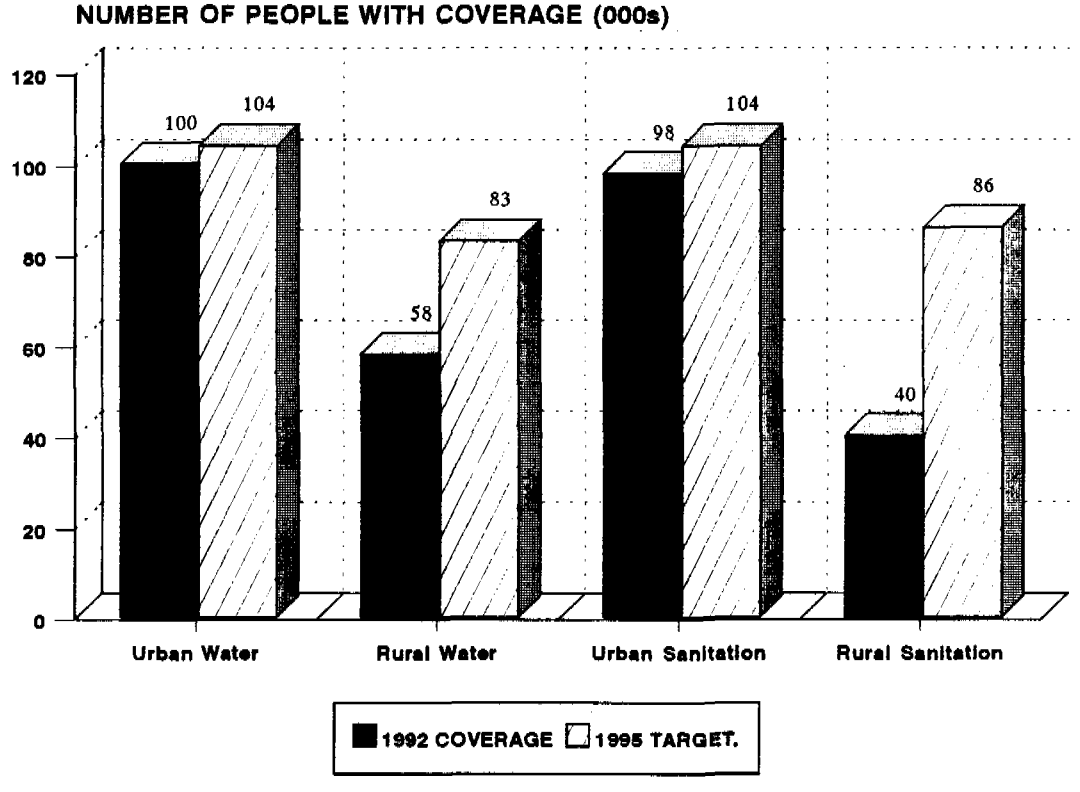

Figure 7

Belize—1992 Coverage and 1995 Targets (number of people)

Rural Water and Sanitation

With 62 percent rural water coverage, Belize lags far behind the 1995 target of 81 percent. The rural sanitation subsector falls short of its target by 41 percent. To close the current gap as well as absorb the increase in population, water services for 25,000 people and sanitation services for 46,000 people must be provided over the next three years.

To achieve the water target, $4.3 million must be invested; only $184,000 is committed at this time. An estimated $5.2 million is needed to achieve the sanitation target, of which less than $500,000 has been committed.

In 1990 WASH reported an investment shortfall for the rural sector twice that of the urban sector. Current estimates show a rural sector shortfall ($9.5 million) seven times greater than the urban sector ($1.4 million).

Chapter 3

COSTA RICA

3.1 Country Background

COUNTRY PROFILE	
Population (1992)	
Total	3,190,600
Urban	1,535,600 (48.1%)
Rural	1,655,000 (51.9%)
Population Growth Rate	
Total (1992)	2.4%
Urban	3.8%
Rural	2.0%
Infant Mortality Rate (1991)	13
Under 5 Mortality Rate (1991)	15
Mortality Rate due to Infectious and Parasitic Diseases (1990)	11.8
Mortality Rate due to Diarrheal Diseases (1990)	4.6
Life Expectancy (1992)	76.2
Adult Literacy Rate (1990)	93%
GNP per Capita (1990)	$1,900
GNP per Capita Annual Growth (1965-90)	1.4%
Currency	Colon 137.7 = US$1
Average Annual Inflation (1980-90)	23.5%

Costa Rica is located between Nicaragua to the north and Panama to the southeast. Its land area and population comprise about one-tenth of the total for Central America, placing it, at 62 persons per km^2, near the average for population density for the region. By most other measures, particularly its economic performance and public health, Costa Rica ranks far above average among Central American countries. Costa Rica's infant mortality rate is one-third of Central America's; its per capita GNP is one-and-a-half times larger than the regional average ($1,270); and it can claim near universal literacy, school attendance, and access to health care, as well as 100 percent access to water supply and sanitation services in urban areas. In fact, in all of Latin America, only Costa Rica and Cuba are classified along with the world's 30-odd wealthiest countries in UNICEF's rankings of lowest mortality rates for children under five.

Agriculture dominates the economy in contributing to GDP, employment, and export earnings. Coffee and bananas are the main agricultural exports although earnings from nontraditional agricultural exports have increased substantially since the late 1980s. The industrial sector is well developed and generates over 20 percent of GDP. However, industry remains heavily dependent on imported inputs. Economic stability and prosperity have resulted from economic adjustment policies, introduced in the early 1980s, that stressed export promotion and restrictions in public spending. In order to offset the impact of these policies on the poor, a program for social compensation also was implemented.

Costa Rica is rich in water resources. The country has 34 river basins and possesses adequate surface and groundwater resources to serve its population of 3.2 million. The quality of these resources, however, is being rapidly undermined by industrial, agricultural, and domestic-waste

pollution, which constitutes a serious health problem for the nation. In addition, although basic sanitation service coverage has improved over the past decade, the solid-waste problem has grown. PAHO reports that approximately 1.5 million kg of solid waste are produced daily, of which 16 percent is collected regularly but disposed of improperly, and 54 percent is not collected at all.

Three local institutions work in the water and sanitation sector. The *Instituto Costarricense de Acueductos y Alcantarillado* (AyA), Costa Rica's national water and sewerage agency, has the authority to determine policies in water and sanitation. *Instituto de Fomento y Asesoría Municipal* (IFAM) and the Ministry of Health, through its Department of Wells and Sanitation, also are active in the sector.

3.2 Current Coverage Levels

Tables 6 and 7 compare estimates of past and current (1992) access to water supply and sanitation facilities to the 1995 targets for urban water supply, rural water supply, urban sanitation, and rural sanitation. Urban coverage is universal, and in the rural areas, an estimated 90 percent of the population has access to water and 94 percent has access to sanitation facilities.

Table 6

Costa Rica—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980 BASELINE	2,210	1,960	89%	1,025	1,025	100%	1,185	935	79%
1984	2,405	2,154	90%	1,070	1,059	99%	1,335	1,095	82%
1986	2,531	2,281	90%	1,126	1,115	99%	1,405	1,166	83%
1988	2,790	2,572	92%	1,490	1,490	100%	1,300	1,082	83%
1989	2,940	2,770	94%	1,764	1,764	100%	1,176	1,006	86%
1990	3,015	2,859	95%	1,832	1,832	100%	1,183	1,027	87%
1992	3,191	3,030	95%	1,536	1,536	100%	1,655	1,494	90%
TARGETS FOR 1995	3,424	3,217	94%	1,702	1,702	100%	1,722	1,515	88%

Population figures are rounded to the nearest thousand.

Table 7

Costa Rica—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	2,210	2,044	92%	1,025	1,016	99%	1,185	1,028	87%
BASELINE 1984	2,405	2,319	96%	1,070	1,059	99%	1,335	1,260	94%
1986	2,531	2,442	96%	1,126	1,115	99%	1,405	1,327	94%
1988	2,790	2,678	96%	1,490	1,475	99%	1,300	1,203	93%
1989	2,940	2,873	98%	1,764	1,764	100%	1,176	1,109	94%
*1990	3,015	2,946	98%	1,832	1,832	100%	1,183	1,115	94%
1992	3,191	3,092	97%	1,536	1,536	100%	1,655	1,556	94%
TARGETS FOR 1995	3,424	3,338	97%	1,702	1,702	100%	1,722	1,636	95%

Population figures are rounded to the nearest thousand.

Figures 8 and 9 demonstrate that over the last decade Costa Rica has attained universal coverage in urban water and sanitation and maintained rural sanitation coverage at a very high level (94 percent). The most notable improvement has been in the steady increase in rural water services. Although coverage data for 1992 were unavailable in the categories defined by WASH (see section 1.2), the estimates from a variety of sources over the last few years have all been in the 90-100 percent range. Therefore, although WASH's estimates for 1992 relied on several different sources from previous years and from the judgements of in-country experts, there is likely a relatively small margin of error in WASH's current estimates.

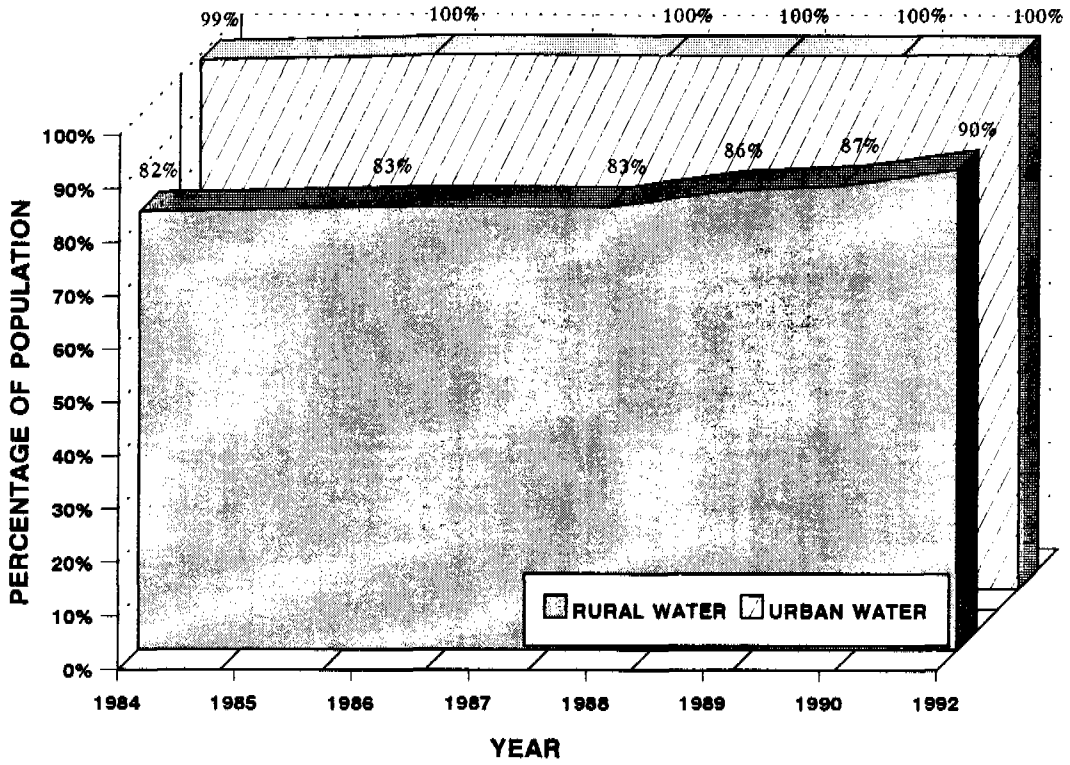

Figure 8

Costa Rica—Urban and Rural Water Supply Coverage

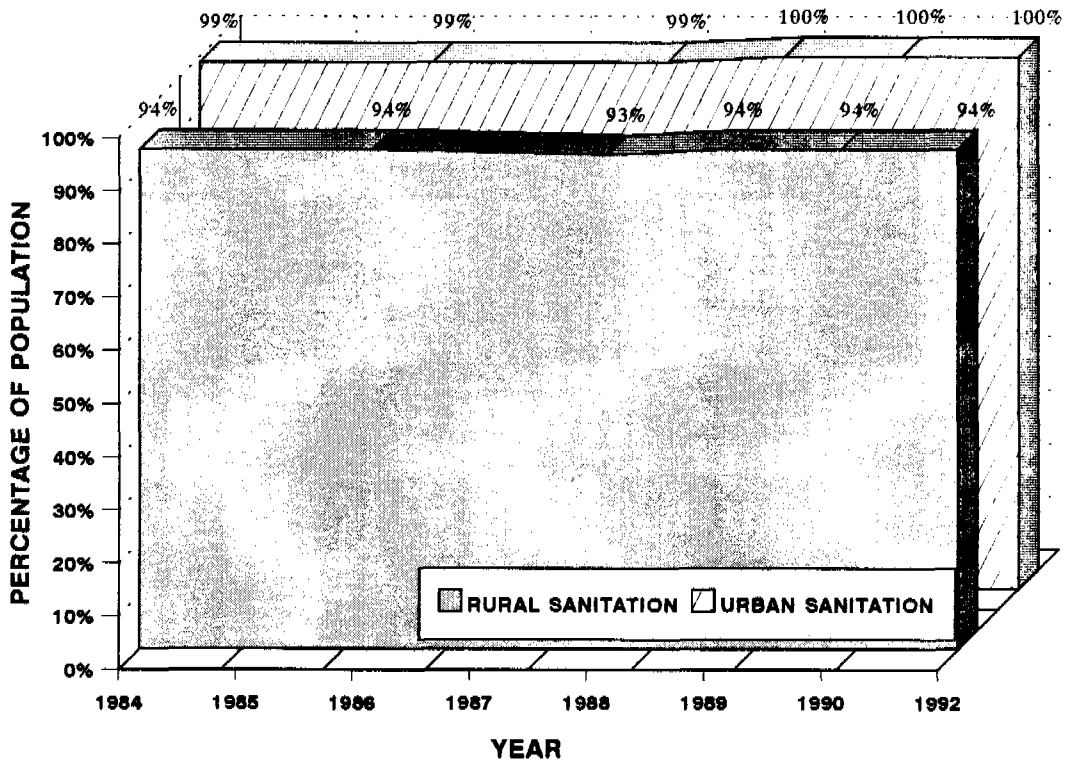

Figure 9

Costa Rica—Urban and Rural Sanitation Coverage

3.3 Investments in Water and Sanitation

The investments that are currently committed by the external funding agencies for the extension of water and sanitation services (see Table 8) are substantially more than those reported in 1990 ($11.6 million) and represent roughly 90 percent of the amount required to meet the 1995 targets. This increase is primarily a result of major new initiatives financed by IDB and the World Bank.

Table 8

Costa Rica—Funding Commitments by Sector, 1993-95 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
IDB	5000		31,000		36,000
KfW		4,800		2,100	6,900
OECF	7,000				7,000
UNICEF		130		50	180
WORLD BANK	8,600		2,600		11,200
TOTAL	20,600	4,930	33,600	2,150	61,280

Although universal coverage has been attained in the two urban subsectors, additional investments will be needed to maintain this level of coverage in the face of population growth, estimated at 3.8 percent annually for Costa Rica's urban centers. The additional investment required to meet the 1995 target is approximately $6.6 million (see Table 9 and Figure 10).

Table 9

Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)—Costa Rica

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	3,217	1,702	1,515	3,338	1,702	1,636	NA
Coverage in 1992	3,030	1,536	1,494	3,092	1,536	1,556	NA
Required Increase	187	166	21	246	166	80	NA
Estimated Unit Cost (US $ Per Capita)	NA	160	98	NA	164	35	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$28,618	$26,560	$2,058	$30,024	$27,224	$2,800	$58,642
Firmly Committed Investments (000s)*	$25,530	$20,600	$4,930	$35,750	$33,600	$2,150	$61,280
Projected Funding Shortfall (000s)**	$5,960	$5,960	($2,872)	$ 650	($6,376)	$ 650	$6,610

**Includes only those investments to increase coverage.*

***The shortfall calculation assumes that funding in excess of a subsector's requirement for the 1995 targets will remain allocated to that subsector, allowing the expansion of services to exceed WASH's targets.*

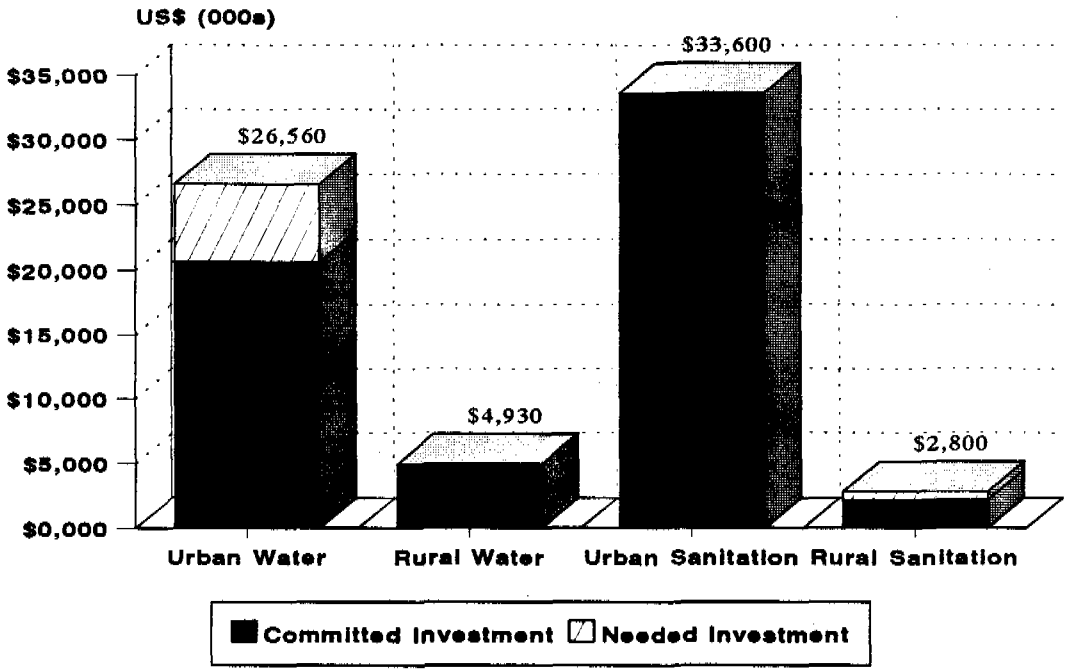

Figure 10

Costa Rica—Investment Needed to Meet 1995 Targets

Investments are committed to all four subsectors; in urban sanitation and rural water, these funds should be sufficient to sustain 100 percent coverage and at least 88 percent coverage, respectively. Of the $6.6 million still required between 1993-95, most ($6 million) will be needed in the urban water subsector, the remainder in rural sanitation.

3.4 Meeting the 1995 Water and Sanitation Targets

The outlook for meeting the 1995 goals is optimistic, given the high levels of current coverage (see Figures 11 and 12), the relatively modest amounts of required investments, and the confidence of the international agencies in Costa Rica. Assuming that funds will not be transferred between subsectors, the bulk of the shortfall in funding will be in the urban water subsector.

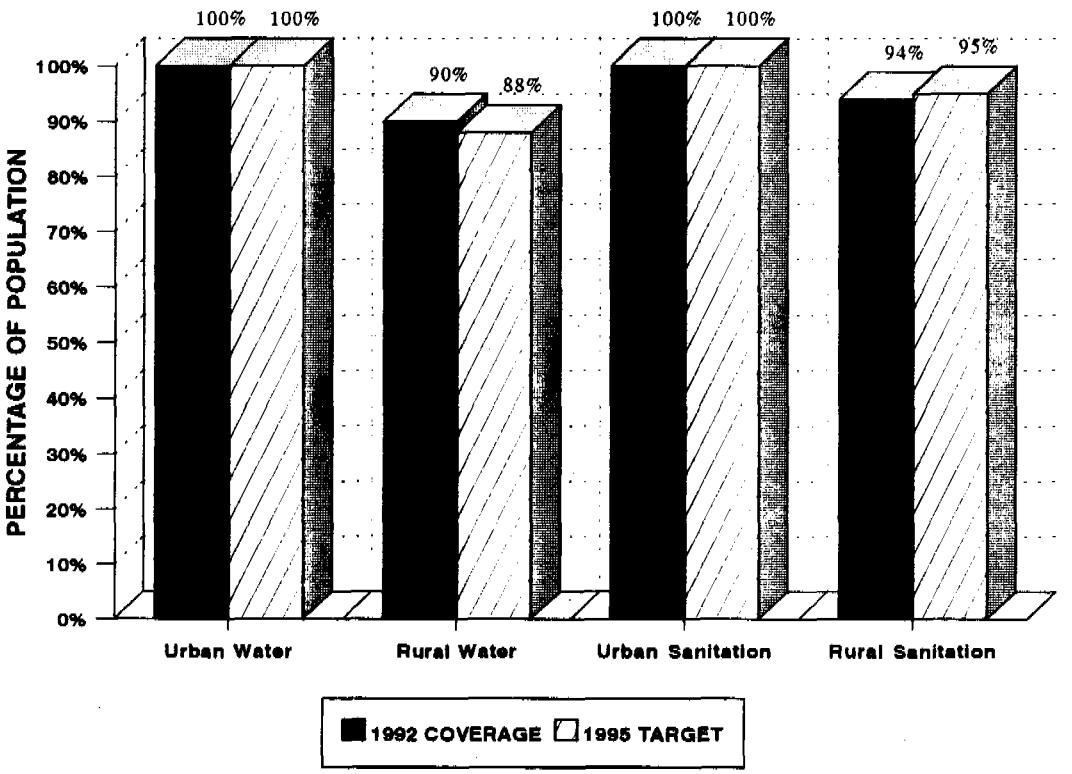

Figure 11

Costa Rica—1992 Coverage and 1995 Targets (percent of population)

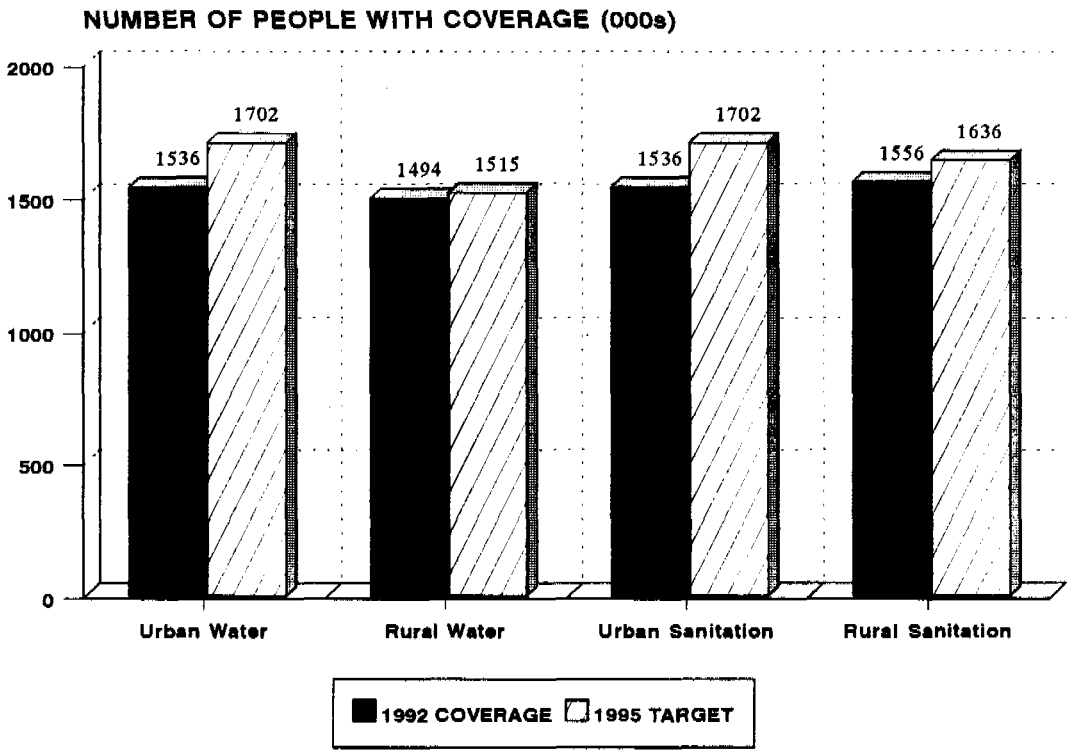

Figure 12

Costa Rica—1992 Coverage and 1995 Targets (number of people)

Urban Water and Sanitation

The focus of current funding commitments for water and sanitation in urban areas is on the rehabilitation and improvement of existing systems. Nevertheless, increasing the efficiency of operations provides for new consumers, therefore a portion of these funds can be categorized as commitments for the extension of services. With universal access to water and sanitation services in Costa Rica's urban centers already attained, meeting the 1995 goals is simply a matter of providing services for the estimated 166,000 new residents the cities will receive over the next three years. Current financial commitments to the sanitation sector are deemed sufficient; however, the water sector will require additional support of approximately $2 million a year over the next three years.

Rural Water and Sanitation

As illustrated in Figures 11 and 12, in order to meet WASH's 1995 goals, all that is required is a 1 percent increase in coverage in the sanitation sector. To achieve and maintain that level of coverage in the face of population growth, rural sanitation services will be required for an estimated 80,000 additional people. Given the relatively low unit costs of providing rural sanitation facilities, total cost would be only $2.8 million, of which three-quarters currently is committed.

For rural water, the situation is even more promising. The 1995 goal has already been surpassed by 2 percent, and current financial commitments will be sufficient to maintain the coverage level at 88 percent.

Chapter 4

EL SALVADOR

4.1 Country Background

COUNTRY PROFILE	
Population (1992)	
Total	5,410,400
Urban	2,452,000 (45.3%)
Rural	2,958,400 (54.7%)
Population Growth Rate	
Total (1992)	2.1%
Urban (1985-90)	2.6%
Rural (1985-90)	1.2%
Infant Mortality Rate (1988)	55
Under 5 Mortality Rate (1988)	75
Mortality Rate due to Infectious and Parasitic Diseases (1990)	60.6
Mortality Rate due to Intestinal and Diarrheal Diseases (1990)	35.5
Life Expectancy (1992)	66.0
Adult Literacy (1990)	73%
GNP per Capita (1990)	$1,110
GNP per Capita Annual Growth (1965-90)	-0.4%
Currency	Colon 8.75 = US$1
Average Annual Inflation (1980-90)	17.2%

The Republic of El Salvador is the second most populous country in Central America. Although the country has only about half as many inhabitants as Guatemala, it has about one-fifth of the land area, making it by far the most densely populated country in the region, with 253 persons per km^2. Geographically, El Salvador is divided into three distinct regions: the mountainous region to the east (with elevations up to 2,700 meters above sea level), the central plateau, and the coastal plains along the Pacific.

El Salvador's social and economic life has been devastated by 12 years of civil war. During the 1980s, the country suffered displaced populations, disruption of government services, declines in production, capital flight, rampant inflation, and a growing balance of payments deficit. However, under the terms of the U.N.-sponsored peace process, which began in January 1992, these troubles may be ending.

Data collection efforts over the past decade also suffered because of the civil war. However, a recently completed national census has improved the available data for the country. Understandably, the access to water and sanitation services remains low, particularly in the rural areas now termed the "ex-conflictive zones." Infant and child mortality rates have declined in recent years, but, with inadequate access to safe water supplies, diarrheal and intestinal diseases remain major health problems, particularly among children. According to PAHO, 60 percent of deaths among infants under one year of age are due to infectious and parasitic diseases, especially diarrhea and parasitoses.

El Salvador faces major environmental problems including deforestation, soil degradation, the improper use of insecticides, and the lack of effective environmental legislation. The pressures on the environment are exacerbated by the population density and a series of natural disasters including floods, earthquakes, and droughts. Without increased investment in the

environment, these problems will pose a serious obstacle to providing safe drinking water in the future.

Two national agencies are largely responsible for work in the sector: the *Administración Nacional de Acueductos y Alcantarillados* (ANDA), which is responsible for the provision of water services and sanitation facilities to urban populations of over 2,000 and to rural villages with under 300 residents, and the *Plan Nacional de Saneamiento Básico Rural* (PLANSABAR), a division of the Ministry of Public Health, which serves towns with populations between 300 and 2,000. Two coordinating committees, the *Comité Nacional de Instituciones de Agua Potable y Saneamiento* (CONIAPOS) and the *Comité Ejecutivo Protector de los Recursos Hídricos* (CEPHRI), also serve the sector. CONIAPOS is a water policy-determining body, and CEPHRI acts in an advisory capacity to all government institutions involved in water-related activities.

4.2 Current Coverage Levels

Tables 10 and 11 show estimates of past and current (1992) access to water supply and sanitation facilities, compared to the 1995 WASH targets for the four subsectors urban water supply, rural water supply, urban sanitation, and rural sanitation. In the urban areas, access to services is fairly high: 86 percent for water supply and 84 percent for sanitation. In rural areas, coverage lags far behind, at 15 percent for water and 51 percent for sanitation.

Table 10

El Salvador—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	4,540	2,330	51%	1,900	1,280	67%	2,640	1,050	40%
BASELINE 1984	4,700	2,261	48%	1,980	1,445	73%	2,720	816	30%
1986	4,800	2,081	43%	2,000	1,518	76%	2,800	563	20%
1988	4,934	2,236	45%	2,072	1,864	90%	2,862	372	13%
1989	5,100	2,366	46%	2,500	2,063	83%	2,600	303	12%
1990	5,200	2,500	48%	2,550	2,150	84%	2,650	350	13%
1992	5,410	2,552	47%	2,452	2,109	86%	2,958	444	15%
TARGETS FOR 1995	5,768	3,284	57%	2,692	2,207	82%	3,076	1,077	35%

Population figures are rounded to the nearest thousand.

The trends in coverage (see Figures 13 and 14) demonstrate that over the last decade the situation has improved very little and, in fact, has deteriorated in the rural water subsector. For a variety of direct and indirect reasons, the civil war prevented greater progress in the sector. Although large sums have been invested in the sector in recent years, it appears that the increase in services has only just kept pace with the population growth and the destruction from the conflict. The one exception is the rural sanitation subsector where access increased 10-15 percent over the past four years.

Table 11

El Salvador—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	4,540	1,600	35%	1,900	910	48%	2,640	690	26%
BASELINE 1984	4,700	2,355	50%	1,980	1,485	75%	2,720	870	32%
1986	4,800	2,756	57%	2,000	1,772	89%	2,800	984	35%
1988	4,934	2,911	59%	2,072	1,927	93%	2,862	984	34%
1989	5,100	3,118	61%	2,500	2,076	83%	2,600	1,042	40%
1990	5,200	3,299	63%	2,550	2,228	87%	2,650	1,071	40%
1992	5,410	3,568	66%	2,452	2,060	84%	2,958	1,509	51%
TARGETS FOR 1995	5,768	4,076	71%	2,692	2,477	92%	3,076	1,600	52%

Population figures are rounded to the nearest thousand.

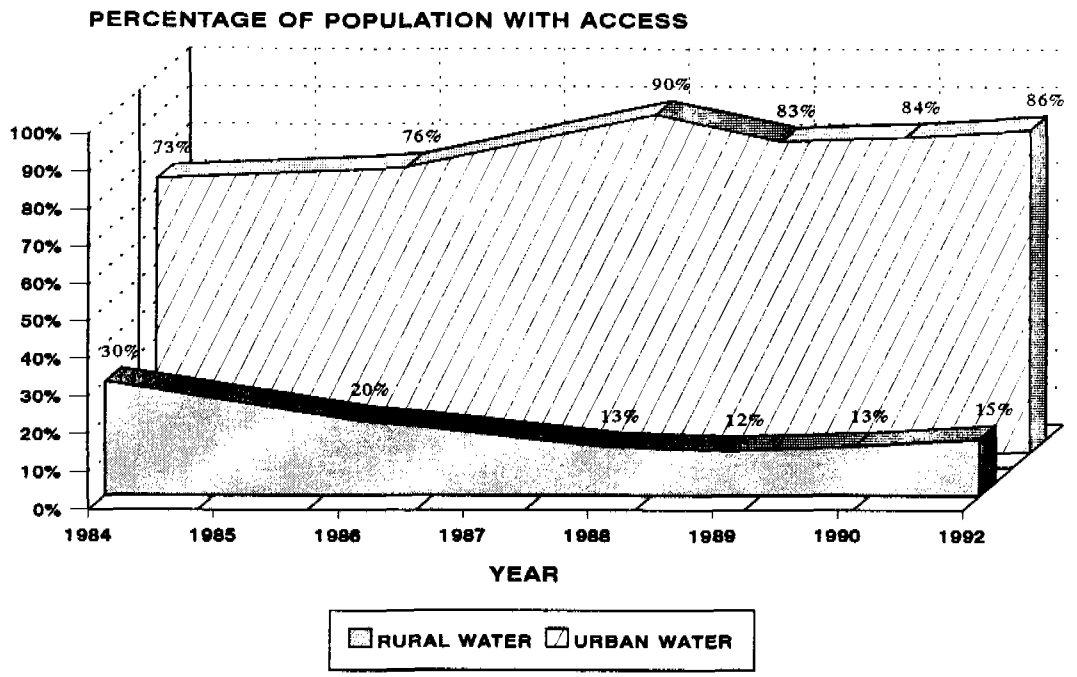

Figure 13

El Salvador—Urban and Rural Water Supply Coverage

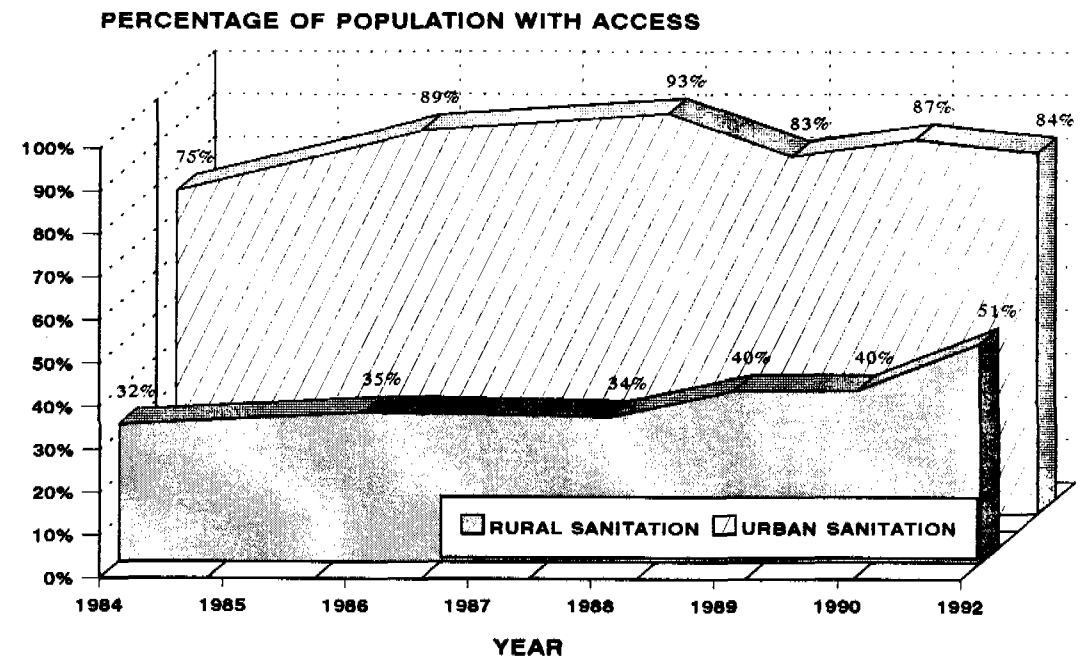

Figure 14

El Salvador—Urban and Rural Sanitation Coverage

4.3 Investments in Water and Sanitation

The level of investments currently committed by the external funding agencies for the extension of water and sanitation services (see Table 12) is one-third of the $62 million reported in 1990. This decrease in projected funding is a result of the completion of seven of the nine USAID-funded projects that totaled almost $60 million and the delay in approval of an IDB loan, which was not included in this analysis.

Table 12

El Salvador—Funding Commitments by Sector, 1993-95 (in US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
KfW		3,500		1,500	5,000
OECF	2,500		2,500		5,000
SAVE THE CHILDREN		3,000			3,000
UNICEF		1,100		1,000	2,100
USAID		5,400		600	6,000
TOTAL	2,500	13,000	2,500	3,100	21,100

Only 16 percent of the necessary investments are currently committed, leaving a shortfall of $109 million (see Table 13 and Figure 15). The shortfall is almost equally divided between the rural and urban sectors, although the rural water subsector requires the single greatest input. Only the rural sanitation subsector requires no additional funds beyond those presently committed given that the current estimated coverage level of 51 percent is only 1 percent below the 1995 WASH target.

Table 13

El Salvador—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	3,284	2,207	1,077	4,076	2,477	1,600	NA
Coverage in 1992	2,552	2,109	444	3,568	2,060	1,509	NA
Required Increase	732	98	633	508	417	91	NA
Estimated Unit Cost (US $ Per Capita)	NA	213	106	NA	93	18	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$87,972	$20,874	$67,098	$40,419	$38,781	$1,638	$128,391
Firmly Committed Investments (000s)*	$15,500	$2,500	$13,000	$ 5,600	$ 2,500	$3,100	$21,100
Projected Funding Shortfall (000s)**	$72,472	$18,374	$54,098	$36,281	$36,281	($1,462)	$108,753

**Includes only those investments to increase coverage.*

***The shortfall calculation assumes that funding in excess of a subsector's requirement for the 1995 targets will remain allocated to that subsector, allowing the expansion of services to exceed WASH's targets.*

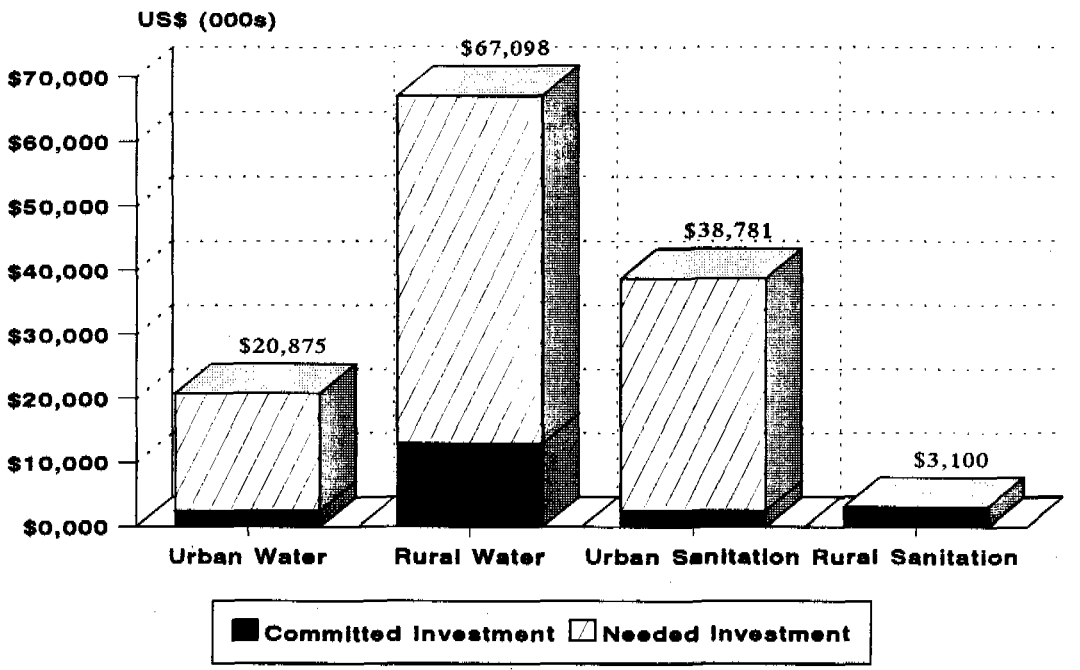

Figure 15

El Salvador—Investment Needed to Meet 1995 Targets

4.4 Meeting the 1995 Water and Sanitation Targets

The biggest gap between current coverage levels and the 1995 WASH targets (see Figures 16 and 17) is in the rural water subsector. Current levels fall short of the target by 20 percent, or service for 633,000. The urban sanitation subsector also represents a sizeable gap; some 417,000 people will require additional services by 1995. These numbers are not insignificant and, given the low levels of funding currently committed, major new sources of external funding will be required to meet the 1995 goals.

Urban Water and Sanitation

Current coverage for urban water and sanitation in El Salvador's urban centers is fairly good in relation to WASH targets. Coverage in the water subsector (86 percent) already exceeds the targeted level by four percent. However, maintaining coverage over the next three years, even at the lower, targeted level, will require that new services be provided to an estimated 98,000 people. Only about 12 percent of the required $20.9 million investment has been committed. Roughly twice as much will be required in the sanitation subsector. Some 417,000 people will need to be provided with services in the next three years to meet the 1995 goal.

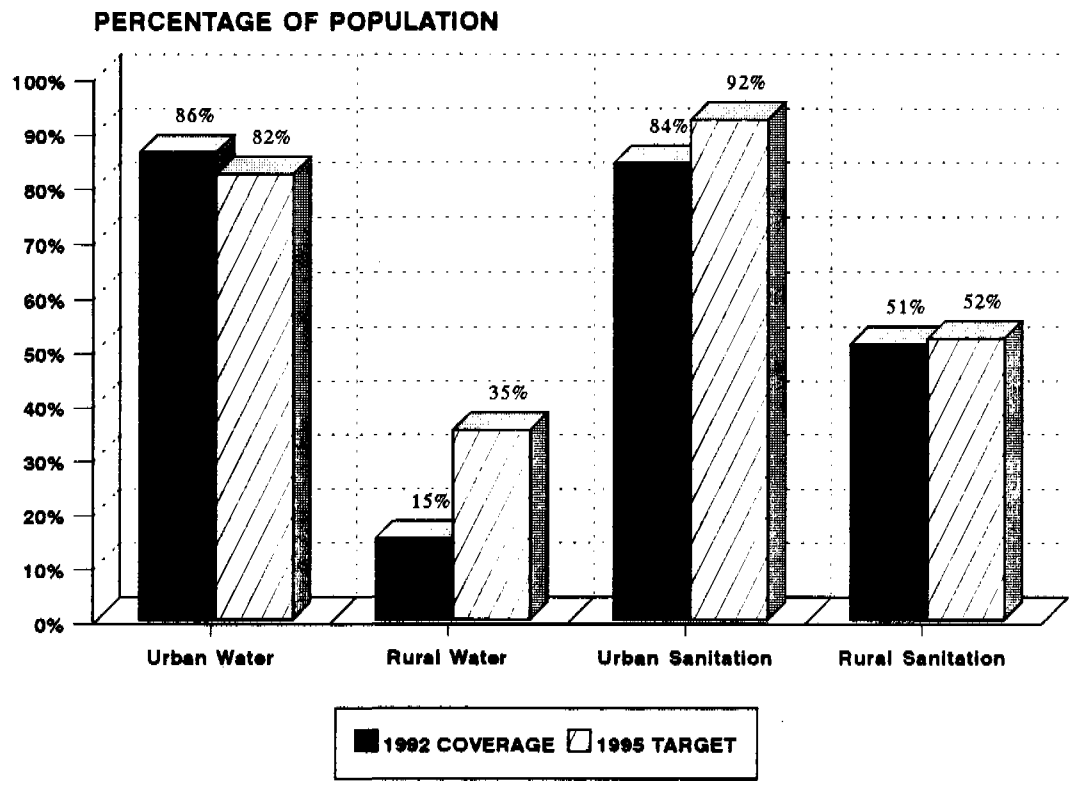

Figure 16

El Salvador—1992 Coverage and 1995 Targets (percent of population)

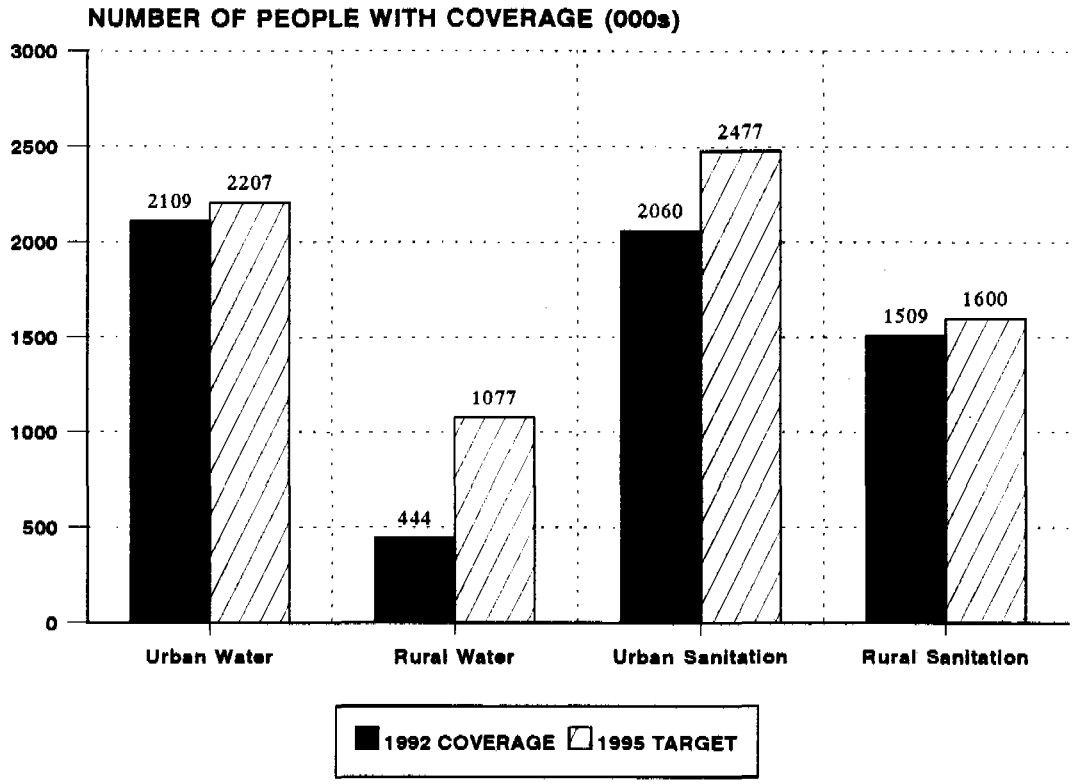

Figure 17

El Salvador—1002 Coverage and 1995 Targets (number of people)

This translates into $38 million, of which only 6 percent has been committed. The total shortfall in the urban sector now stands at $55 million, or $18 million a year between 1993 and 1994.

Rural Water and Sanitation

Clearly the water and sanitation situation is more serious in the rural areas, as demonstrated by the great disparity between rural and urban coverage levels, as well as the disparity between the current and targeted levels for rural water. In effect, half of all rural Salvadorans have no sanitation facilities, and an astonishing six out of seven lack access to safe drinking water. Access to water in rural areas, currently estimated at 15 percent, will need to increase to 35 percent coverage by 1995. This represents 633,000 people and $67 million, of which only $13,000 is firmly committed. Access to sanitation facilities (51 percent), although close to the targeted level (52 percent), is still very low. To meet the 1995 target, service will need to be extended to more than 90,000 people. At this point, all of the required funds are currently committed for this subsector.

Chapter 5

GUATEMALA

5.1 Country Background

COUNTRY PROFILE
Guatemala

Population (1992)	
Total	9,766,600
Urban	3,929,600 (40.2%)
Rural	5,837,000 (59.8%)
Population Growth Rate	
Total	2.9%
Urban	3.6%
Rural	2.5%
Infant Mortality Rate (1987)	73.4
Under 5 Mortality Rate (1987)	109.8
Mortality Rate due to Infectious and Parasitic Diseases (1990)	211.5
Mortality Rate due to Intestinal and Diarrheal Diseases (1990)	134.0
Life Expectancy (1992)	64.5
Adult Literacy (1990)	55%
GNP per Capita (1990)	$900
GNP per Capita Annual Growth (1965-90)	0.7%
Currency	Quetzal 5.44 = US$1
Average Annual Inflation (1980-90)	14.6%

With close to 10 million inhabitants and 108,889 km^2 of land, Guatemala is the most populous and third largest country in Central America. Only about two-thirds of the country is populated, however; 70 percent is mountainous, and 62 percent is forested. Guatemala also is distinguished from its Central American neighbors by its large indigenous and rural population. Sixty percent of the population still lives in rural areas. Half of rural residents live below the absolute poverty level, as estimated by the World Bank.

The Guatemalan economy is dominated by agriculture, which typically contributes 25 percent of the GDP and more than 60 percent of export earnings. Agriculture also provides employment to over half the working population. Cotton, sugar, bananas, and maize are grown along the Pacific coast; the central highlands are dominated by coffee below 1,500 meters and by subsistence crops above that level. The manufacturing sector, which has been traditionally oriented towards Central American markets, is well developed and contributes about 16 percent to the GDP.

Guatemala's mortality rate for children under five years of age is the highest in the region. PAHO estimates that 62 percent of Guatemala's population lives in 19,000 localities of fewer than 2,000 residents (90 percent of the country's settlements). Many of these are in the central highlands where access to health services is low. Overall, Guatemalans rank sixth in the region for basic water supply and last for sanitation service coverage; roughly half of all Guatemalans lack access to water and excreta disposal systems. Like other countries in the region, Guatemala faces widespread pollution problems. According to PAHO, an estimated 85 percent of urban water supply systems have some degree of contamination; rural water supplies also are often of poor quality. The country fell far short of meeting the 1990 goals established for the International Drinking Water Supply and Sanitation Decade; substantial investments will be necessary to meet the 1995 WASH goals.

Three local government agencies and two coordinating committees currently serve the sector. *Empresa Municipal de Agua de la Ciudad de Guatemala* (EMPAGUA) manages the water supply and sewerage needs of Guatemala City. *Instituto de Fomento Municipal* (INFOM) is responsible for financing water and sanitation in other urban areas; each municipality is responsible for operating and maintaining facilities. Rural water and sanitation are provided by two units of the Ministry of Public Health—the Environmental Sanitation Division and *Unidad Ejecutora del Programa de Acueductos Rurales* (UNEPAR). The *Comité Permanente de Coordinación de Agua Potable y Saneamiento* (COPECAS) determines the regional distribution of water and sanitation activities. The recently created *Secretaría de Recursos Hidraulicos* will determine water and sanitation development policies for the Government of Guatemala.

5.2 Current Coverage Levels

Tables 14 and 15 show estimates of past and current (1992) access to water supply and sanitation facilities, compared to the 1995 WASH targets for the four subsectors urban water supply, rural water supply, urban sanitation, and rural sanitation. An estimated 90 percent of urban residents and 32 percent of those in rural areas have access to safe drinking water. For sanitation, 70 percent and 35 percent of urban and rural dwellers, respectively, have access.

Table 14

Guatemala—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	7,000	3,200	46%	2,700	2,400	89%	4,300	800	19%
BASELINE 1984	7,800	3,500	45%	3,100	2,300	74%	4,700	1,200	26%
1986	8,196	3,700	45%	3,357	2,400	71%	4,839	1,300	27%
1988	8,682	3,880	45%	3,552	2,450	69%	5,130	1,430	28%
1989	8,935	4,152	46%	3,663	2,577	70%	5,272	1,575	30%
1990	9,197	5,121	56%	3,771	3,462	92%	5,426	1,659	31%
1992	9,767	5,405	55%	3,930	3,537	90%	5,837	1,868	32%
TARGETS FOR 1995	10,621	6,831	64%	4,404	4,096	93%	6,217	2,736	44%

Population figures are rounded to the nearest thousand.

Table 15

Guatemala—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	7,000	2,100	30%	2,700	1,200	44%	4,300	900	21%
BASELINE 1984	7,800	2,600	33%	3,100	1,300	42%	4,700	1,300	28%
1986	8,196	2,800	34%	3,357	1,400	42%	4,839	1,400	29%
1988	8,682	3,000	35%	3,552	1,450	41%	5,130	1,550	30%
1989	8,935	3,305	37%	3,663	1,610	44%	5,272	1,695	32%
1990	9,197	4,506	49%	3,771	2,715	72%	5,426	1,791	33%
1992	9,767	4,794	49%	3,930	2,751	70%	5,837	2,043	35%
TARGETS FOR 1995	10,621	6,251	59%	4,404	3,391	77%	6,217	2,860	46%

Population figures are rounded to the nearest thousand.

Over the last 10 years, there has been an apparent increase in water and sanitation coverage (see Figures 18 and 19). However, the deviation in 1990 from the 1984-89 historical data is the result of an adjustment in coverage estimates to include urban populations served by public standpipes, as well as those served by latrines. Neither of these types of coverage was included in pre-1990 estimates. In addition, although most sources report a fairly high level of coverage of water supply in the urban areas, in Guatemala City, which has over 2 million inhabitants and an estimated population in the "barrios marginales" of up to a half a million (PAHO), any under-counting of the informal sector could significantly bias these coverage estimates.

5.3 Investments in Water and Sanitation

The investments that are currently committed by the external funding agencies for the extension of water and sanitation services (see Table 16) roughly equal levels reported in 1990 ($29.5 million). However, this sum represents only 13 percent of the investments needed during the three-year period of 1993-95.

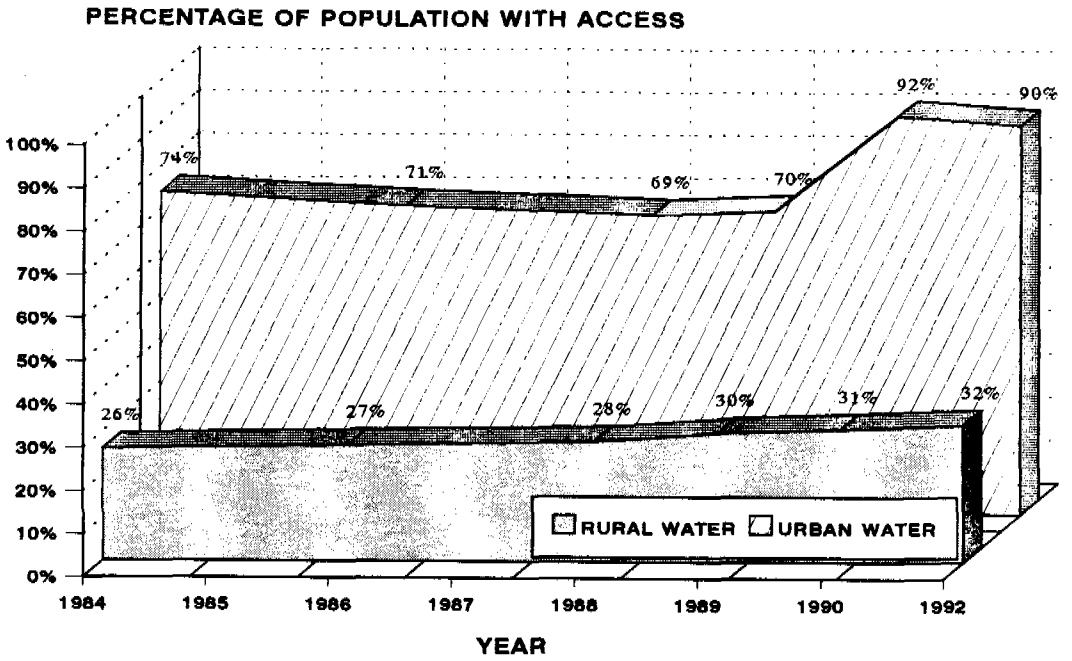

Figure 18

Guatemala—Urban and Rural Water Supply Coverage

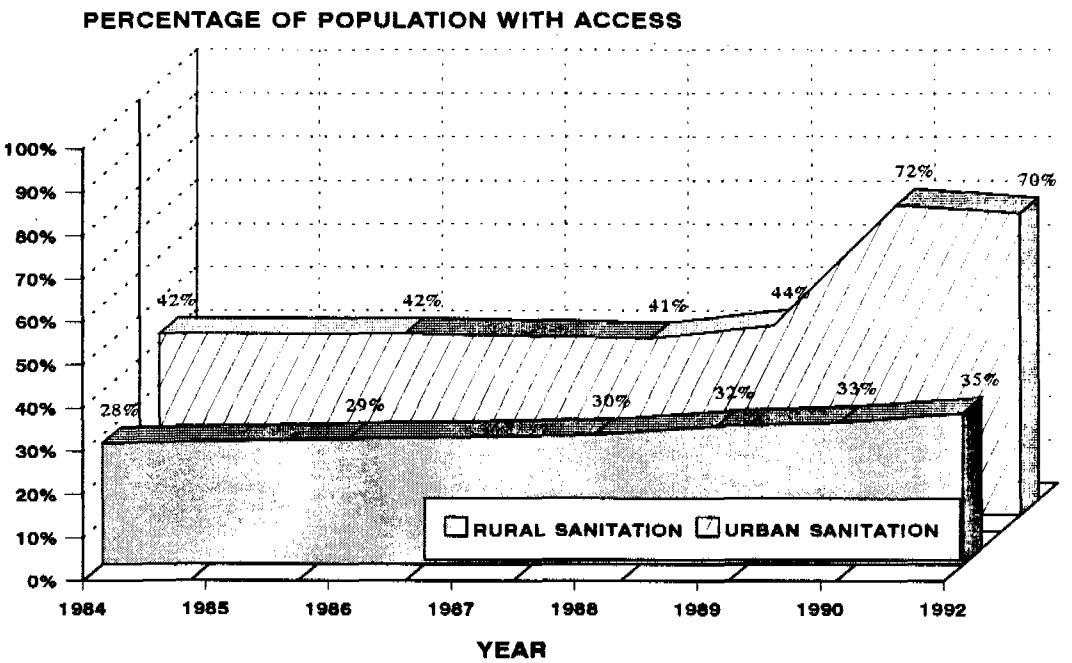

Figure 19

Guatemala—Urban and Rural Sanitation Coverage

Table 16

Guatemala—Funding Commitments by Sector, 1993-95 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
CARE		47		16	63
CRS		156		52	208
IDB		5,000			5,000
KfW		9,200		4,000	13,200
OECF	3,500				3,500
UNICEF		2,640		830	3,470
USAID		4,800		1,600	6,400
TOTAL	3,500	21,843	0	6,498	31,841

The total costs for the rural and urban sectors of providing services are roughly equal at $120 million each (see Table 17 and Figure 20). With only modest commitments to three of the four subsectors, the single largest funding gap is in the rural water subsector, which has an estimated shortfall of $93 million. The funding gap for the urban sanitation ($68 million) and urban water ($49 million) subsectors also are quite high.

Table 17

Guatemala—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	6,831	4,096	2,735	6,251	3,391	2,860	NA
Coverage in 1992	5,404	3,537	1,868	4,794	2,751	2,043	NA
Required Increase	1,427	559	867	1,457	640	817	NA
Estimated Unit Cost (US $ Per Capita)	NA	94	132	NA	107	17	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$166,990	$52,546	$114,444	$82,369	$68,480	$13,889	$249,359
Firmly Committed Investments (000s)*	$25,343	$3,500	$21,843	$ 6,498	$0	$6,498	$31,841
Projected Funding Shortfall (000s)	$141,647	$49,046	$92,601	$75,871	$68,480	$7,391	$217,518

**Includes only those investments to increase coverage.*

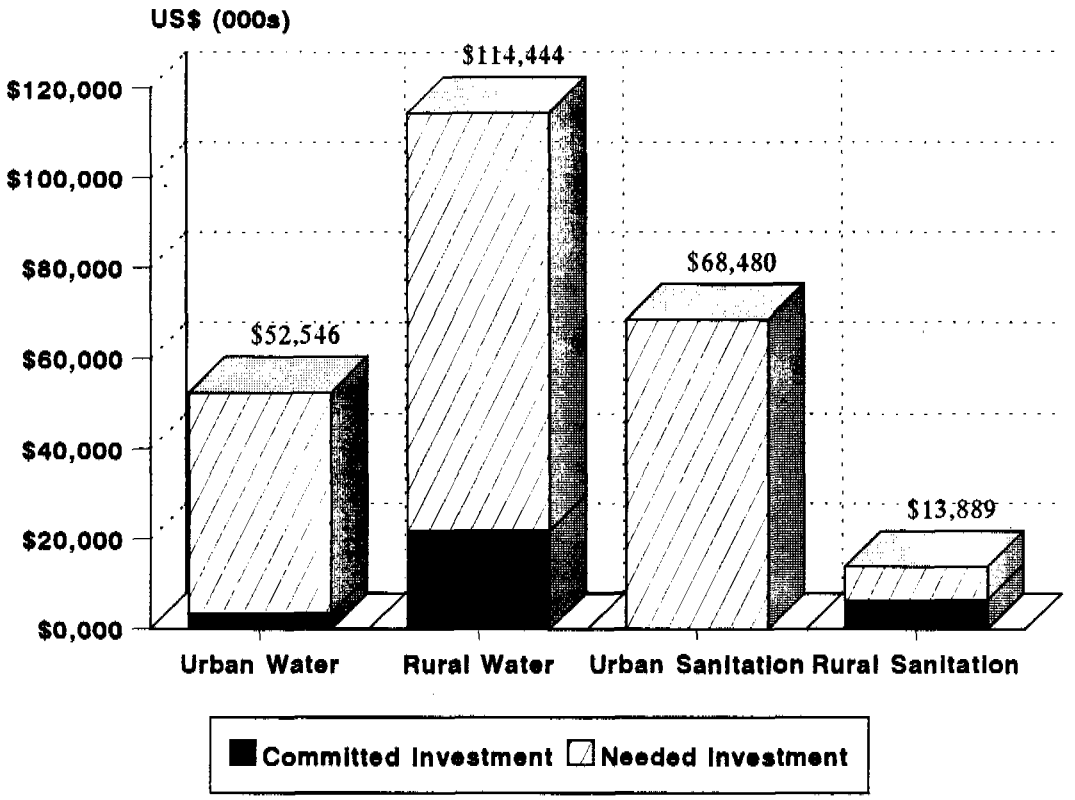

Figure 20

Guatemala—Investment Needed to Meet 1995 Targets

5.4 Meeting the 1995 Water and Sanitation Targets

The coverage in all four subsectors currently falls below the target levels by between 3 and 12 percent. Therefore, between now and 1995, services must be provided to accommodate the current gap in coverage as well as the anticipated population growth (see Figures 21 and 22). With one-third of Central America's population in Guatemala, the absolute number of people to be provided with services over the next three years is surpassed only by Honduras.

Urban Water and Sanitation

The current 3 percent gap between coverage and targeted levels for water supply and 7 percent gap for sanitation represents roughly 118,000 and 275,000 persons who lack access to water and sanitation services, respectively. In addition, between now and 1995, an additional 441,000 and 365,000 persons must be provided with services in order to meet 1995 goals. These large numbers, even considering Guatemala's relatively low unit costs for urban services, translate into very large required investments, approximately $39 million a year for the urban sector over the next three years.

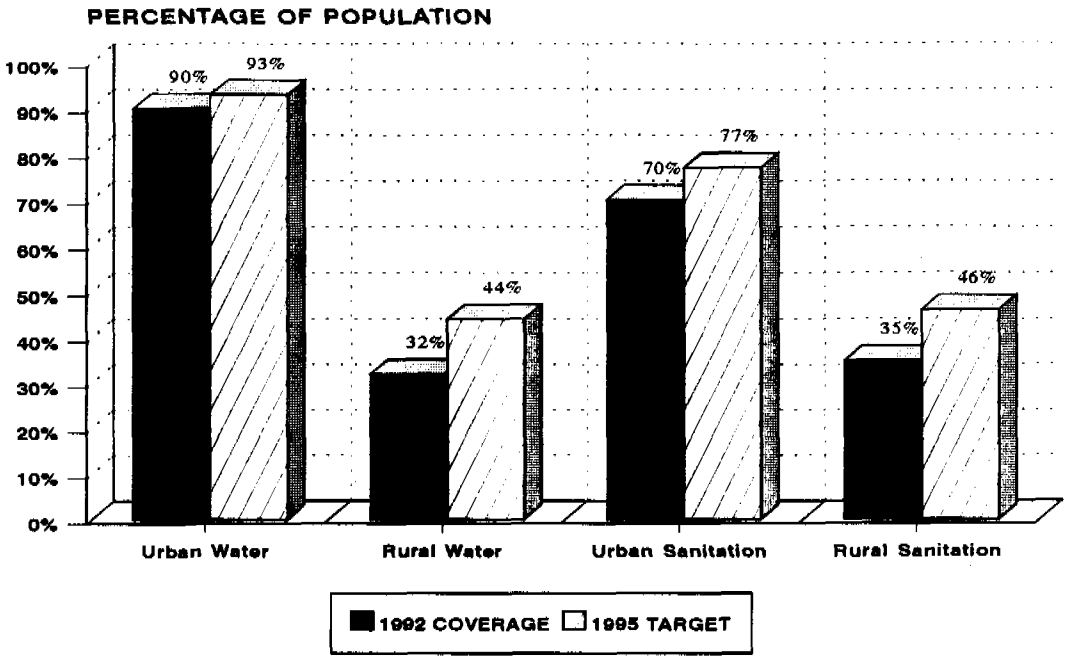

Figure 21

Guatemala—1992 Coverage and 1995 Targets (percent of population)

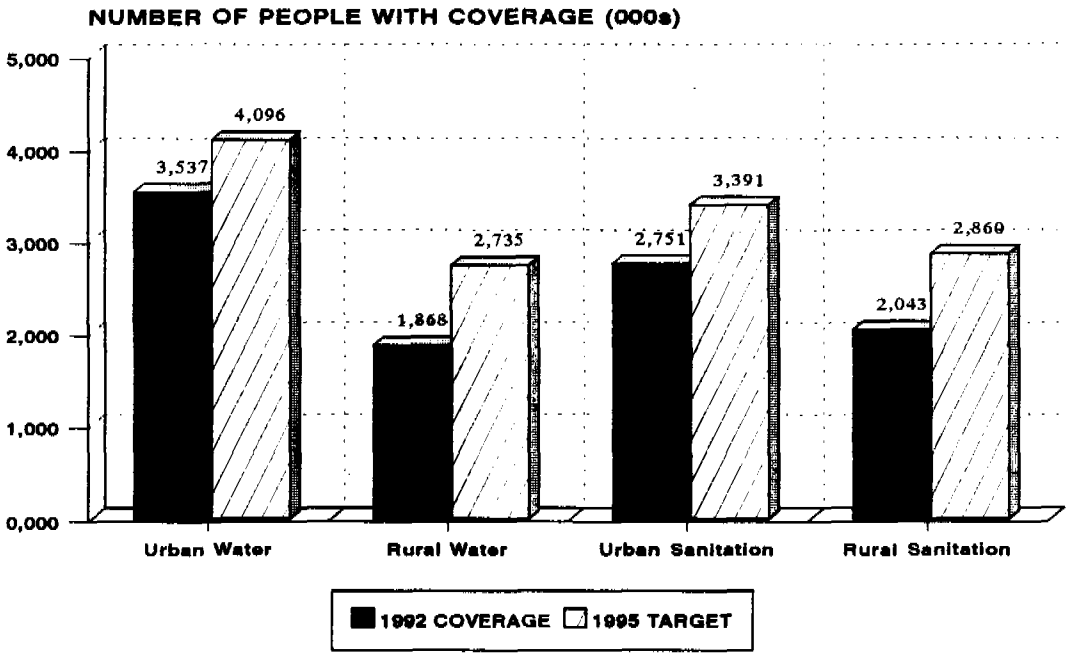

Figure 22

Guatemala—1992 Coverage and 1995 Targets (number of people)

Rural Water and Sanitation

The current gap between coverage and targeted levels for water supply (12 percent) and sanitation (11 percent) and the rapid rural population growth mean that, over the next three years, more than 800,000 persons in each of the rural subsectors must be provided with service in order to meet 1995 goals. The relatively high unit costs of providing water in rural areas accounts for much of the funding required. Total costs are estimated at $128,000; currently only about 20 percent of these funds are committed. Therefore, the shortfall for the rural sectors amounts to about $33 million annually.

Chapter 6

HONDURAS

6.1 Country Background

COUNTRY PROFILE Honduras	
Population (1992)	
Total	5,029,000
Urban	2,278,999 (45.3%)
Rural	2,751,000 (54.7%)
Population Growth Rate	
Total	3.0%
Urban	5.2%
Rural	1.8%
Infant Mortality Rate (1991)	46
Under 5 Mortality Rate (1991-1992)	55
Mortality Rate due to Infectious and Parasitic Diseases (1990)	80.9
Mortality Rate due to Intestinal and Diarrheal Diseases (1990)	50.5
Life Expectancy (1991)	66.0
Adult Literacy (1990)	73%
GNP per Capita (1990)	$590
GNP per Capita Annual Growth (1965-90)	0.5%
Currency	Lempiras 6.0 = US$1
Average Annual Inflation (1980-90)	5.4%

Honduras is usually ranked as the poorest country in Central America, as well as one of the poorest in the western hemisphere. Per capita GNP, at $590, is approximately one-third of Costa Rica's. While over half the population lives in rural areas, the very high urban growth rate will cause Honduras to become predominantly urban over the next decade. In addition, the rapid population growth has swelled the labor supply beyond what the economy can absorb. Unemployment persists at rates above 20 percent; underemployment is even higher.

Agriculture remains the dominant sector of the economy, accounting for over 20 percent of GDP and over 70 percent of exports. Large numbers of landless farmers contribute to rural poverty and underemployment. Despite land shortages, over one-half of agricultural lands are used solely for grazing. The manufacturing sector remains one of the least developed in the region.

Despite reductions in mortality and morbidity rates, current data attest to the need for additional investment in health care. Intestinal and respiratory infections, followed by diarrheal diseases, are the leading causes of death. High rates of diarrheal and intestinal disease occur in rural and peri-urban areas lacking primary health care and adequate water and sanitation facilities. The infant mortality rate, exacerbated by these conditions, remains one of the highest in Central America.

Over the past decade, Honduras has made some advances in improving environmental conditions. More investments are needed, however, to develop satisfactory conditions in solid waste disposal, surface water pollution, and industrial waste management.

The *Servicio Autónomo Nacional de Acueductos y Alcantarillados* (SANAA) is responsible for water and sanitation services for communities with populations over 500. Smaller villages are serviced by the Bureau of Environmental Health (DSM), a department of the Ministry of

Health. Within the framework of this report, in which rural areas are defined as communities of fewer than 2,000 residents, both SANAA and DSM work in the rural sector. Additionally, in several Honduran cities, municipal water and sewerage institutions have been established to operate and maintain services.

6.2 Current Coverage Levels

Tables 18 and 19 show estimates of past and current (1992) access to water supply and sanitation facilities, compared to the 1995 WASH targets for the four subsectors: urban water supply, rural water supply, urban sanitation, and rural sanitation. In urban areas, an estimated 88 percent of the population has access to water and sanitation services. For the rural population, the estimates fall to 47 percent and 43 percent for access to water and sanitation services, respectively.

Table 18

Honduras—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	3,754	2,226	59%	1,368	1,272	93%	2,386	954	40%
BASELINE 1984	4,299	2,726	63%	1,700	1,405	83%	2,599	1,321	51%
1986	4,581	2,983	65%	1,884	1,533	81%	2,697	1,450	54%
1988	4,377	3,054	70%	1,669	1,619	97%	2,708	1,435	53%
1989	4,534	3,159	70%	1,740	1,594	92%	2,794	1,565	56%
1990	4,771	3,282	69%	1,948	1,628	84%	2,823	1,654	59%
1992	5,029	3,298	66%	2,278	2,005	88%	2,751	1,293	47%
TARGETS FOR 1995	5,968	4,735	79%	2,844	2,673	94%	3,124	2,062	66%

Population figures are rounded to the nearest thousand.

Table 19

Honduras—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	3,754	1,290	34%	1,368	670	49%	2,386	620	26%
BASELINE 1984	4,299	2,560	60%	1,700	1,349	79%	2,599	1,211	47%
1986	4,581	2,877	63%	1,884	1,485	79%	2,697	1,392	52%
1988	4,377	3,068	70%	1,669	1,552	93%	2,708	1,516	56%
1989	4,534	3,379	75%	1,740	1,535	88%	2,794	1,844	66%
1990	4,771	3,478	73%	1,948	1,599	82%	2,823	1,879	67%
1992	5,029	3,188	63%	2,278	2,005	88%	2,751	1,183	43%
TARGETS FOR 1995	5,968	4,928	83%	2,844	2,616	92%	3,124	2,312	74%

Population figures are rounded to the nearest thousand.

The trends in coverage (see Figures 23 and 24) demonstrate that apparent improvements in the late 1980s in the percentage of the population with access to services have not held into the early 1990s. The 1992 figures are from a recently completed national survey, and although the categories of access were not in strict accordance with WASH definitions, if anything, the current figures would overstate coverage, as defined by WASH. The pre-1990 figures may have been overly optimistic or simply based on looser definitions of access. It also is possible that the downturn in percentages in 1990 for urban areas and 1992 for rural areas may simply be a result of the failure to keep pace with the high population growth. This is certainly the case for at least part of the downturn in urban areas, where the absolute number of people with access has risen consistently over the last decade, even as the percentage with access fell.

6.3 Investments in Water and Sanitation

Eleven external institutions active in the water and sanitation sector—more than in any other Central American country—currently have committed funding (see Table 20) roughly equal to the level reported in 1990 ($86 million). The funding shortfall remains high at over $250 million for the next three years. In fact, Honduras outranks all other Central American countries in the total cost of investments ($335 million), the amount committed ($80 million), and the shortfall in funding ($255 million) (see Table 21).

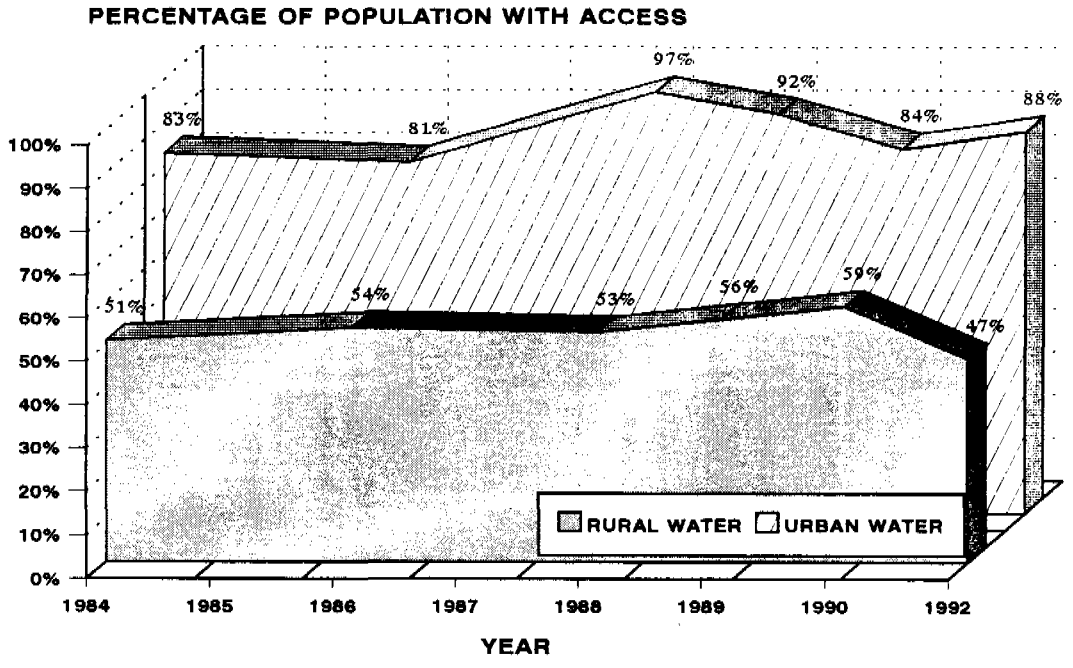

Figure 23

Honduras—Urban and Rural Water Supply Coverage

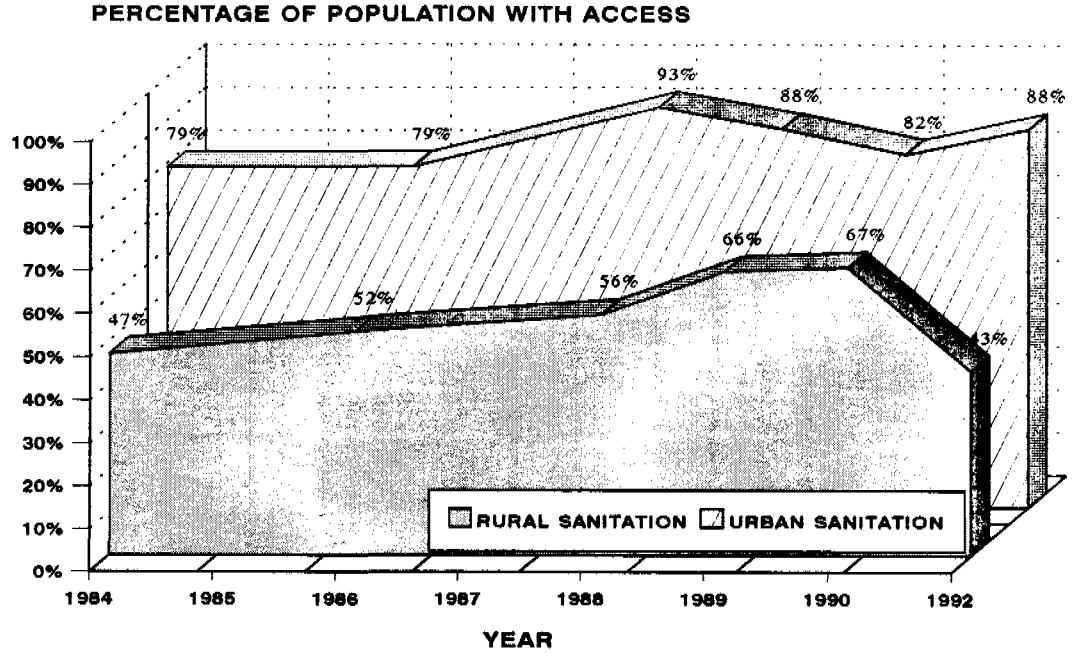

Figure 24

Honduras—Urban and Rural Sanitation Coverage

Table 20

Honduras—Funding Commitments by Sector, 1993-95 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
CIDA		2,200		730	2,930
CARE		575		192	767
CRS		700		230	930
COSUDE		1,300		400	1,700
IDB	25,000	30,000			55,000
KfW		650		280	930
SAVE THE CHILDREN		67		11	78
UNICEF		1,027	518	494	2,039
USAID	1,000	2,500	1,000	350	4,850
WORLD BANK	1,250	3,600	2,000	3,700	10,550
TOTAL	27,250	42,619	3,518	6,387	79,774

Table 21

Honduras—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	4,735	2,673	2,062	4,928	2,616	2,312	NA
Coverage in 1992	3,298	2,005	1,293	3,188	2,005	1,183	NA
Required Increase	1,437	668	769	1,740	611	1,129	NA
Estimated Unit Cost (US $ Per Capita)	NA	107	93	NA	257	31	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$142,993	$71,476	$71,517	$192,026	$157,027	$34,999	$335,019
Firmly Committed Investments (000s)*	$69,869	$27,250	$42,619	$9,905	$3,518	$6,387	$79,774
Projected Funding Shortfall (000s)	$ 73,124	$44,226	$28,898	$182,121	$153,509	$28,612	$255,245

**Includes only those investments to increase coverage.*

The coverage in all four subsectors remains below the 1995 target levels by between 4 and 31 percent. Therefore, large investments are required in all areas. However, more than half of the shortfall in funding lies in one subsector, urban sanitation, (see Figure 25) which is largely a result of the high unit costs of providing sanitation services in urban Honduras.

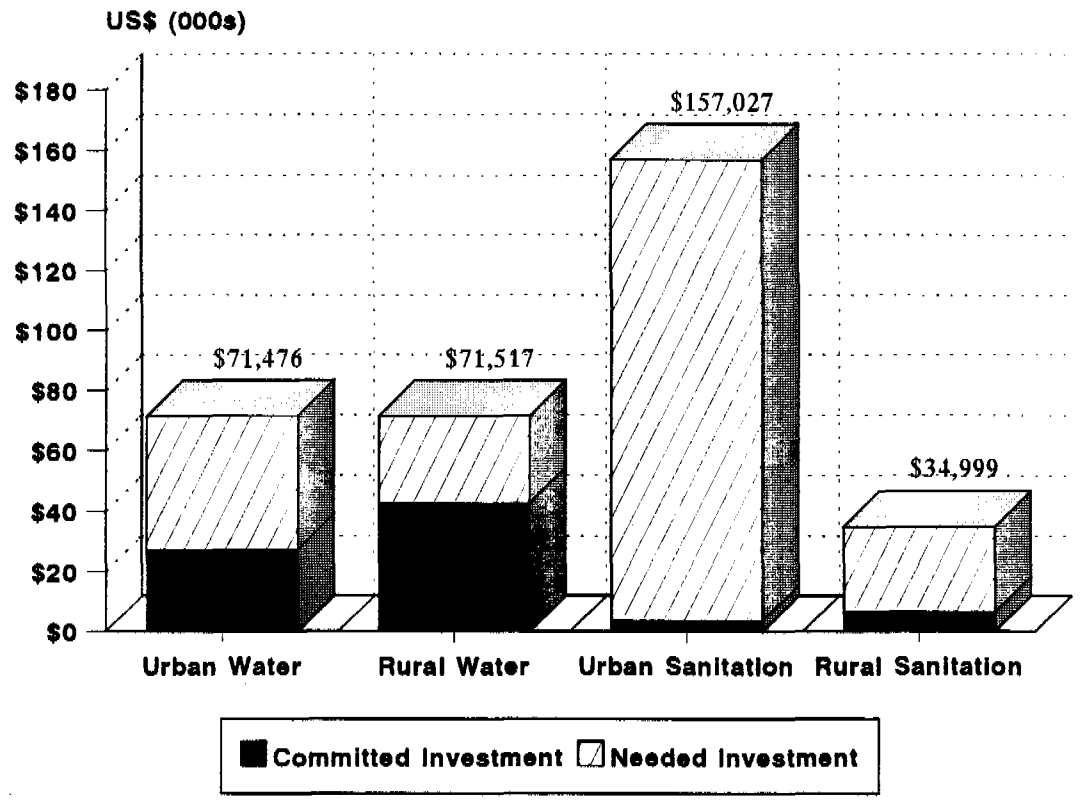

Figure 25

Honduras—Investment Needed to Meet 1995 Targets

6.4 Meeting the 1995 Water and Sanitation Targets

The gap between current coverage levels and the 1995 WASH targets (see Figure 26), and between those served and those requiring service (see Figure 27), is larger in rural than in urban areas. Rural sanitation has the greatest gap in coverage of 31 percent representing over 1 million people. Rural water supply, with a current coverage gap of 19 percent, leaves over 750,000 people short of the target. For each of the two urban subsectors, over 600,000 people will require water and sanitation facilities if the 1995 targets are to be met.

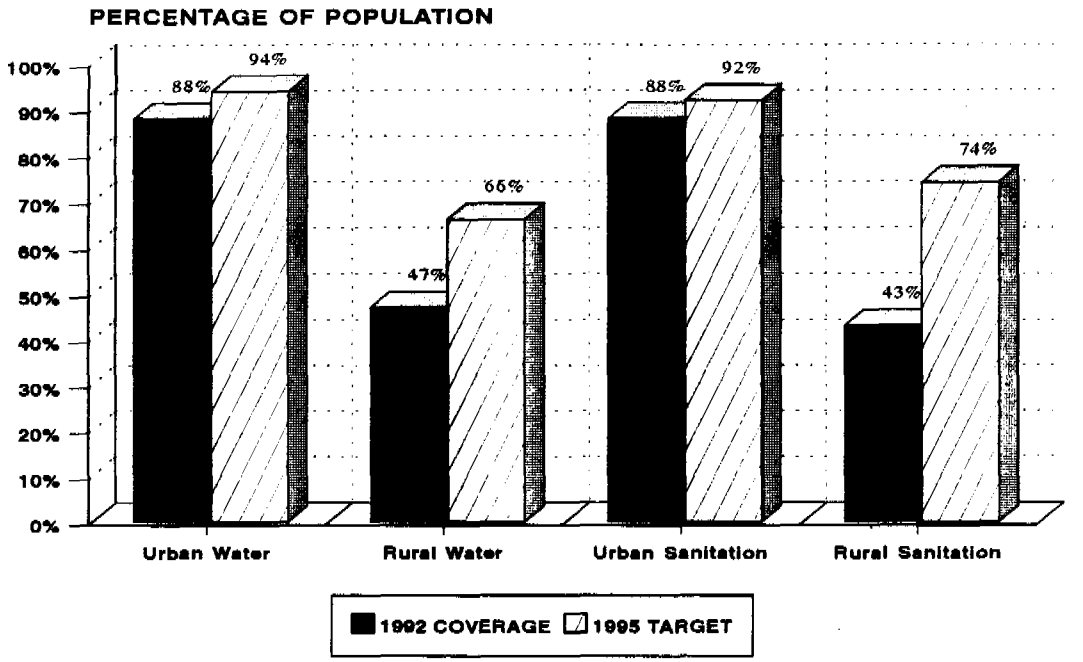

Figure 26

Honduras—1992 Coverage and 1995 Targets (percent of population)

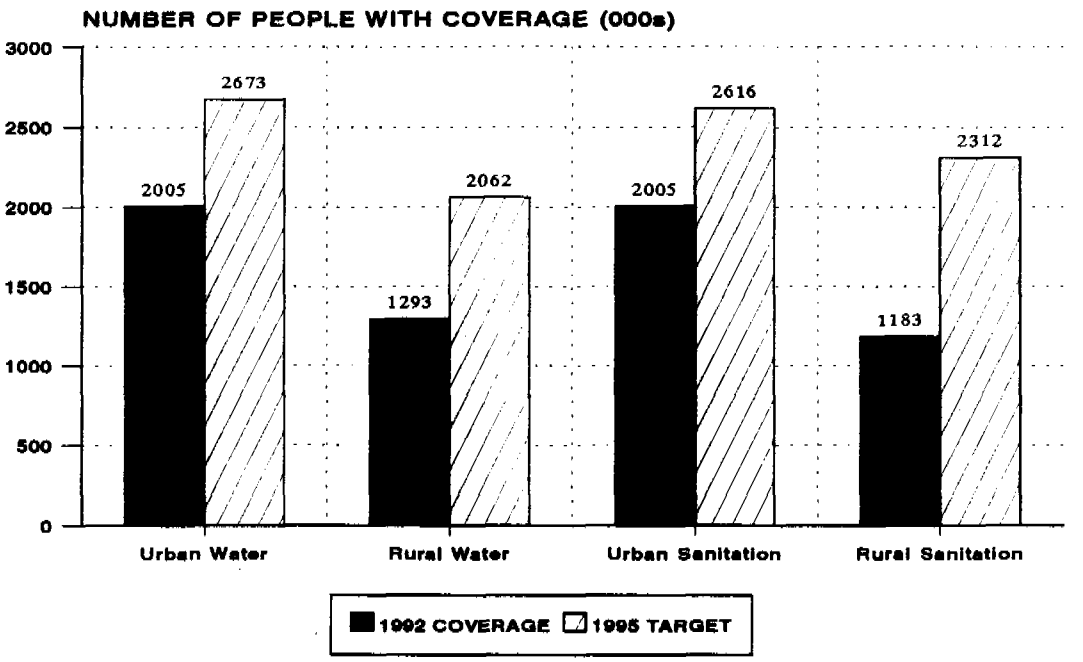

Figure 27

Honduras—1992 Coverage and 1995 Targets (number of people)

Urban Water and Sanitation

Although the gaps between current coverage and the targets for the urban subsectors (6 and 4 percent) are not as large as the rural gaps, meeting 1995 targets will require providing services to a large number of people in the face of a rapidly expanding urban population. In addition, the high unit costs, particularly for sanitation facilities, push up total costs sharply. As a result, the urban sector requires about twice as much investment as the rural sector. With total costs over the next three years estimated at $230 million and with only $30 million committed, the annual shortfall is approximately $66 million. Moreover, based on historical data, funding is more likely to be directed to rural development. Without substantial new commitments in the urban sector over the next three years, the 1995 targets will not be reached.

Rural Water and Sanitation

Clearly, water and sanitation problems are more serious in rural areas, as demonstrated by the great disparity between the rural and urban and between the current and targeted coverage levels. Less than half of the rural population of Honduras currently has access to either water or sanitation. In order to reach the 1995 targets, over 1 million people will require services in the rural sanitation subsector alone. The unit cost of providing services in the rural areas is lower—in the case of sanitation, about one-eighth the urban cost. However, the costs total over $100 million, and only about half currently is committed. Therefore, an additional annual commitment of $19 million is required.

Chapter 7

NICARAGUA

7.1 Country Background

COUNTRY PROFILE Nicaragua	
Population (1992)	
Total	3,978,800
Urban	2,428,800 (61%)
Rural	1,550,000(39.0%)
Population Growth Rate	
Total (1992)	3.6%
Urban (1985-90)	3.8%
Rural (1985-90)	1.1%
Infant Mortality Rate (1987-1992)	58
Under 5 Mortality Rate (1987-1992)	72
Mortality Rate due to Infectious and Parasitic Diseases	Not Available
Mortality Rate due to Intestinal and Diarrheal Diseases	Not Available
Life Expectancy (1992)	66.3
Adult Literacy	83.3%
GNP per Capita (1987)	$830
GNP per Capita Annual Growth (1965-90)	-3.3%
Currency	Gold Cordoba 6.1 = US$1
Average Annual Inflation (1980-90)	432.3%

Nicaragua is the largest, most urbanized country in Central America. The population density, at 33 persons per km^2, is less than half the regional average. The country has three distinct geological zones: the coastal plain along the Pacific containing a volcanic chain and major lakes; the central and northern zones, a region of high plains, mountains, and many hills and valleys; and the Atlantic zone, a low-lying densely wooded plain. Water resources are plentiful: Nicaragua has 24 major rivers, 78 secondary rivers, and numerous lakes.

Nicaragua continues to face severe social and economic difficulties resulting primarily from a bitter civil war and the difficult struggle for national reconciliation. Political stability and economic recovery remain elusive, although the situation has improved somewhat since the February 1990 national election. Inflation is down from a peak of 58,000 percent a year in 1989, and the state bureaucracy and the army have been reduced. Still, there are no signs of new economic growth, and per capita GDP may be the lowest in the region. Some economists believe it is the lowest in the hemisphere.

The agriculture and manufacturing sectors each contribute about one-quarter of the GDP. The economy is heavily dependent on energy imports and external financing, but more than three-quarters of foreign aid is currently spent on servicing old debt.

A national literacy campaign in 1980 raised adult literacy rates to over 80 percent, and a program of social reform improved housing, education, and health facilities throughout the country. Even so, access to health care is poor, particularly in certain geographic areas and among some population groups. Water-related intestinal diseases are the leading cause of mortality. In 1987, one-third of the registered causes of mortality in infants under one were acute diarrhea and other infectious diseases.

The water and sanitation sector has undoubtedly been affected by the social disruptions over the last decade. Gauging the extent of the effect also has been complicated. Conditions in the rural areas are bad, and although coverage in urban areas is reported as high, it is likely overstated, given the lack of data on peri-urban populations. Like its neighbors, Nicaragua has significant pollution and waste disposal problems. In 1989, the country had only three water treatment plants. Of the 19 municipal sanitary sewerage systems documented by PAHO in 1989, only nine had treatment units. PAHO estimates that only 56 percent of municipalities have garbage collection systems, which result in a proliferation of solid waste.

The *Instituto Nicaragüense de Acueductos y Alcantarillados* (INAA) is responsible for the planning, design, and administration of sanitation and water supply systems. The *Comité de Agua y Saneamiento* coordinates water and sanitation policies.

7.2 Current Coverage Levels

Estimating the coverage figures for Nicaragua proved to be the most problematic of any country in the region. The 1992 coverage figures used in this report are drawn from a recently completed national survey, and are considered the best current estimate available. Confidence in the methodology of the survey aside, the utility of these figures in WASH's ongoing assessment of the water and sanitation sector is undermined by categories that did not coincide with the WASH definitions. The categories could not be reconciled, and no adjustment to the estimate was made. However, the survey estimates were surprisingly high for the urban sector. In addition, the relatively low investments in this sector over the last few years would tend to refute the higher 1992 estimates. Using the survey estimates has in turn made it difficult to assess the trends in access to water and sanitation over the last decade, use the 1995 target figures that were based on the much lower 1990 estimates, and assess the investments required in the sector. To arrive at more realistic figures on required investment, this report also uses PAHO's lower coverage estimates to counterbalance figures from the national survey.

Tables 22 and 23 show estimates of past and current (1992) access to water supply and sanitation facilities, compared to the 1995 WASH targets for the four subsectors: urban water supply, rural water supply, urban sanitation, and rural sanitation. In urban areas, the estimated coverage for access to services is high: 92 percent for water supply and 97 percent for sanitation. In rural areas, the coverage is much lower: 17 percent for water and 57 percent for sanitation. All tables and figures reflect these survey estimates, although PAHO reports the following coverage: urban water, 85 percent; urban sanitation, 34 percent; rural water, 20 percent; and rural sanitation, 10 percent.

Table 22

Nicaragua—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	2,746	1,094	40%	1,533	1,002	65%	1,213	92	8%
1985	3,959	1,660	42%	1,884	1,432	76%	2,075	228	11%
1988	3,622	1,928	53%	2,109	1,642	78%	1,513	286	19%
1990	3,917	1,931	49%	2,319	1,645	71%	1,598	286	18%
1992	3,979	2,498	63%	2,429	2,235	92%	1,550	264	17%
TARGETS FOR 1995	4,433	2,645	60%	2,787	2,118	76%	1,646	527	32%

Population figures are rounded to the nearest thousand.

Table 23

Nicaragua—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	2,746	942	34%	1,533	700	46%	1,213	242	20%
1985	3,959	901	23%	1,884	659	35%	2,075	242	12%
1988	3,622	927	26%	2,109	685	32%	1,513	242	16%
1990	3,917	942	24%	2,319	700	30%	1,598	242	15%
1992	3,979	3,240	81%	2,429	2,356	97%	1,550	884	57%
TARGETS FOR 1995	4,433	1,648	37%	2,787	1,171	42%	1,646	477	29%

Population figures are rounded to the nearest thousand.

Based on the survey data, the trends in coverage (see Figures 28 and 29) show a dramatic improvement between 1990 and 1992 for three of the four subsectors. Clearly, no such real improvement was made during the two-year period. In addition to the questions regarding the 1992 figures, the quality of pre-1992 data for water and sanitation, as for other sectors, was certainly undermined by the social disruption during the last decade. Moreover, the variation in estimates over time may be largely a function of changing definitions. The trend data should be viewed in light of these qualifications.

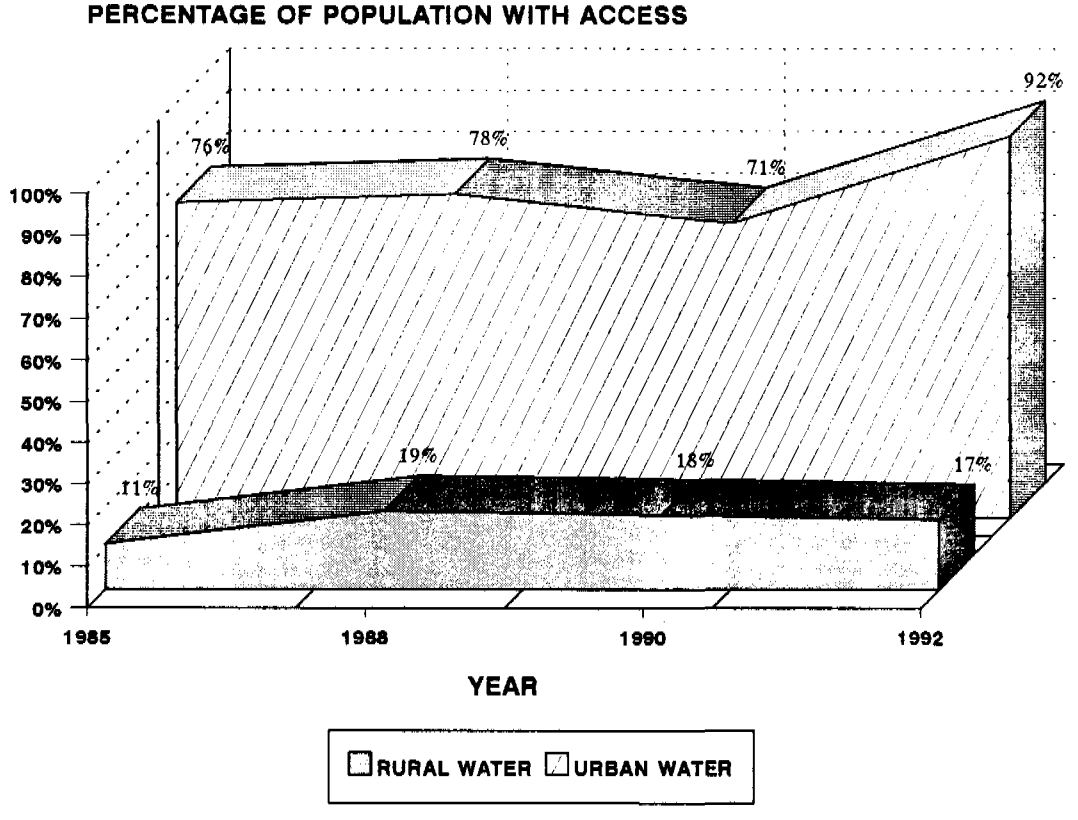

Figure 28

Nicaragua—Urban and Rural Water Supply Coverage

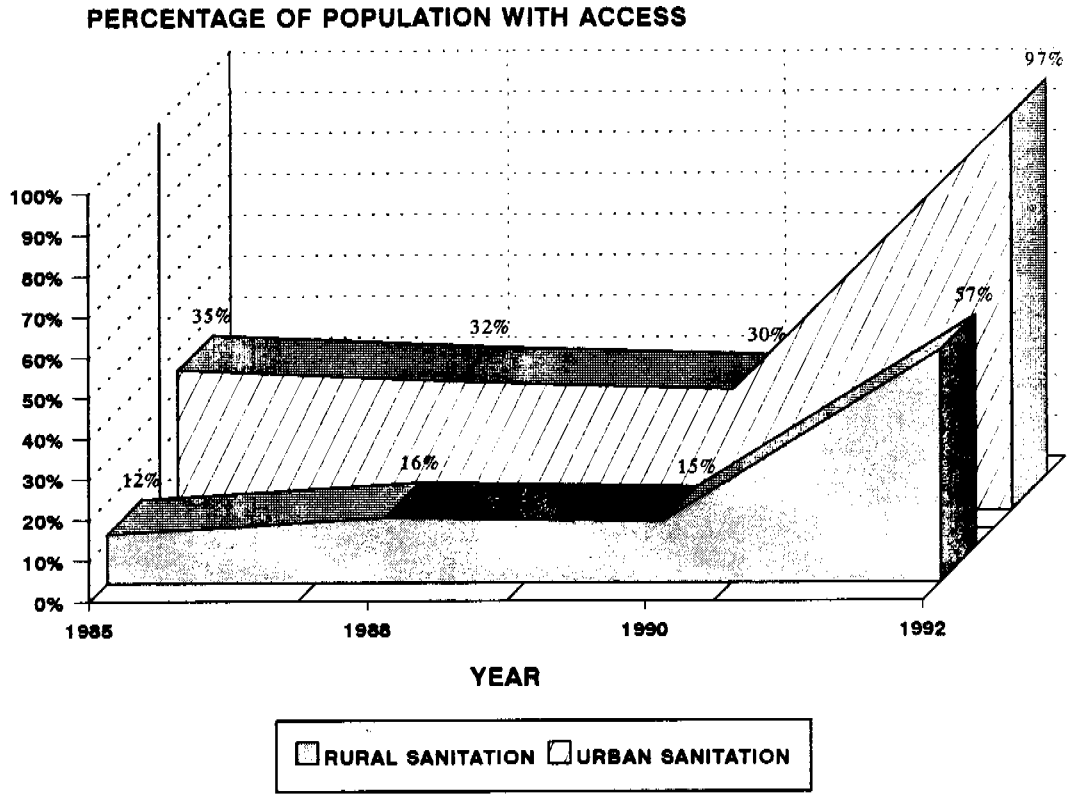

Figure 29

Nicaragua—Urban and Rural Sanitation Coverage

7.3 Investments in Water and Sanitation

The investments that are currently committed by the external funding agencies for the extension of water and sanitation services (see Table 24) are higher by about 40 percent than those reported in 1990 ($8.5 million). In contrast, both the total estimated costs and the shortfall for 1992 (see Table 25) are a fraction of 1990 estimates. This is due to the large difference in coverage estimates between 1990 and 1992. If the much lower coverage estimates from PAHO are used, the total costs jump to $117 million and the shortfall to $103 million. Whatever the true needs of the sector, the country's political and economic instability may discourage additional investments by international donors.

Table 24

Nicaragua—Funding Commitments by Sector, 1993-95 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
CIDA	1,000	1,950		650	3,600
COSUDE		1,300		400	1,700
GTZ			500		500
KfW	3,750		2,500		6,250
UNICEF		1,240		647	1,887
TOTAL	4,750	4,490	3,000	1,697	13,937

Table 25

Nicaragua—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	2,645	2,118	527	1,648	1,171	477	NA
Coverage in 1992	2,498	2,235	264	3,240	2,356	884	NA
Required Increase	263	(117)	263	0	(1,185)	(407)	NA
Estimated Unit Cost (US $ Per Capita)	NA	108	88	NA	224	46	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$23,144	$0	$23,144	$0	$0	$0	$23,144
Firmly Committed Investments (000s)*	$9,240	$4,750	$4,490	$4,697	$3,000	$1,697	$13,937
Projected Funding Shortfall (000s)**	$18,654	($4,750)	$18,654	($4,697)	($3,000)	($1,697)	$18,654

**Includes only those investments to increase coverage.*

***The shortfall calculation assumes that funding in excess of a subsector's requirement for the 1995 targets will remain allocated to that subsector, allowing the expansion of services to exceed WASH's targets.*

As noted, the total costs and funding shortfall are modest, based on the 1992 coverage figures, which show a funding shortfall only in the rural water subsector (see Figure 30).

However, according to PAHO's lower coverage figures, the other three subsectors also require additional investments, with the largest gap in the urban sanitation subsector (approximately $74 million).

7.4 Meeting the 1995 Water and Sanitation Targets

The 1995 target figures were developed in 1990 based on the much lower 1990 coverage levels and the incremental increases in coverage required by 1995 to meet the goal of full coverage by 2020. Since the targets were contingent on 1990 coverage estimates, they are relatively low: 76 percent and 42 percent for urban water and sanitation, and 32 percent and 29 percent for rural water and sanitation, respectively.

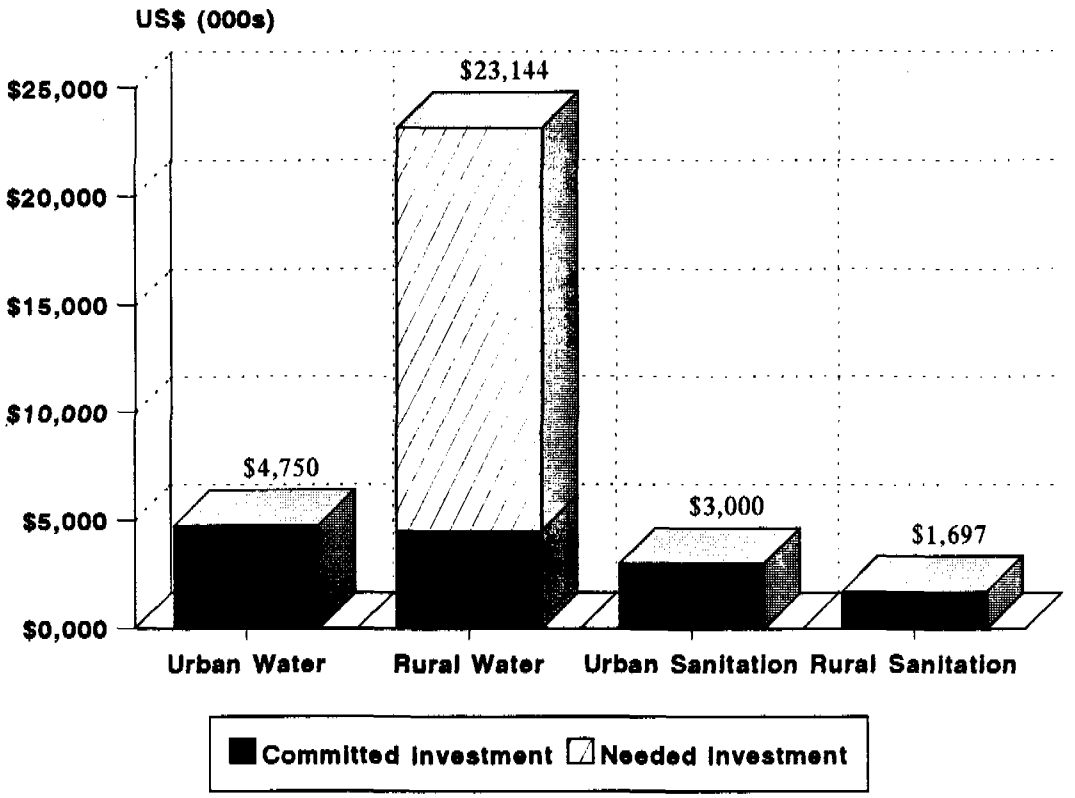

Figure 30

Nicaragua—Investment Needed to Meet 1995 Targets

For three of the four subsectors, the 1992 coverage figures are higher than the 1995 targets (see Figures 31 and 32). Only the rural water subsector remains under target by 15 percent, or 263,000 people, and will require additional investments by 1995. In contrast, under PAHO's estimates, only the urban water supply subsector has attained the 1995 target, and all four subsectors would require substantial new commitments.

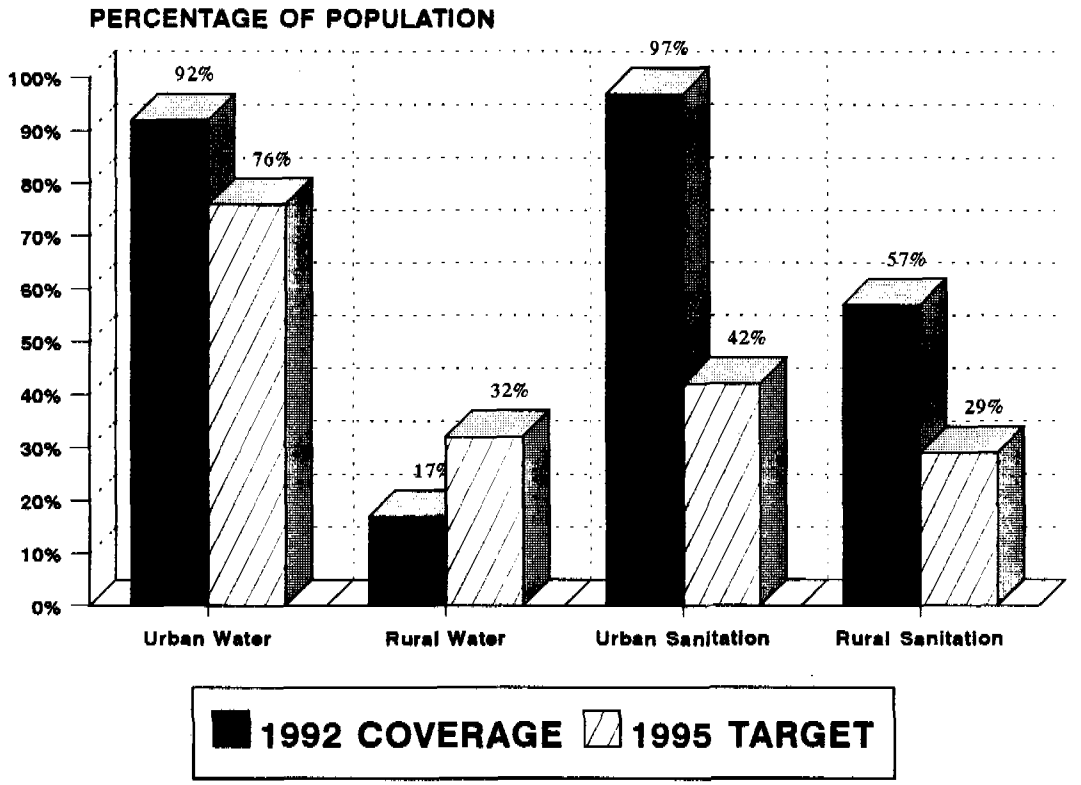

Figure 31

Nicaragua—1992 Coverage and 1995 Targets (percent of population)

Urban Water and Sanitation

Based on the 1992 coverage figures, both urban subsectors have achieved the 1995 targets. According to PAHO figures, however, 53,000 more people would require water services by 1995, and 345,000 would require sanitation services. To provide these new services, additional commitments of $75 million are required in the urban sector, of which almost all would be needed in the sanitation subsector.

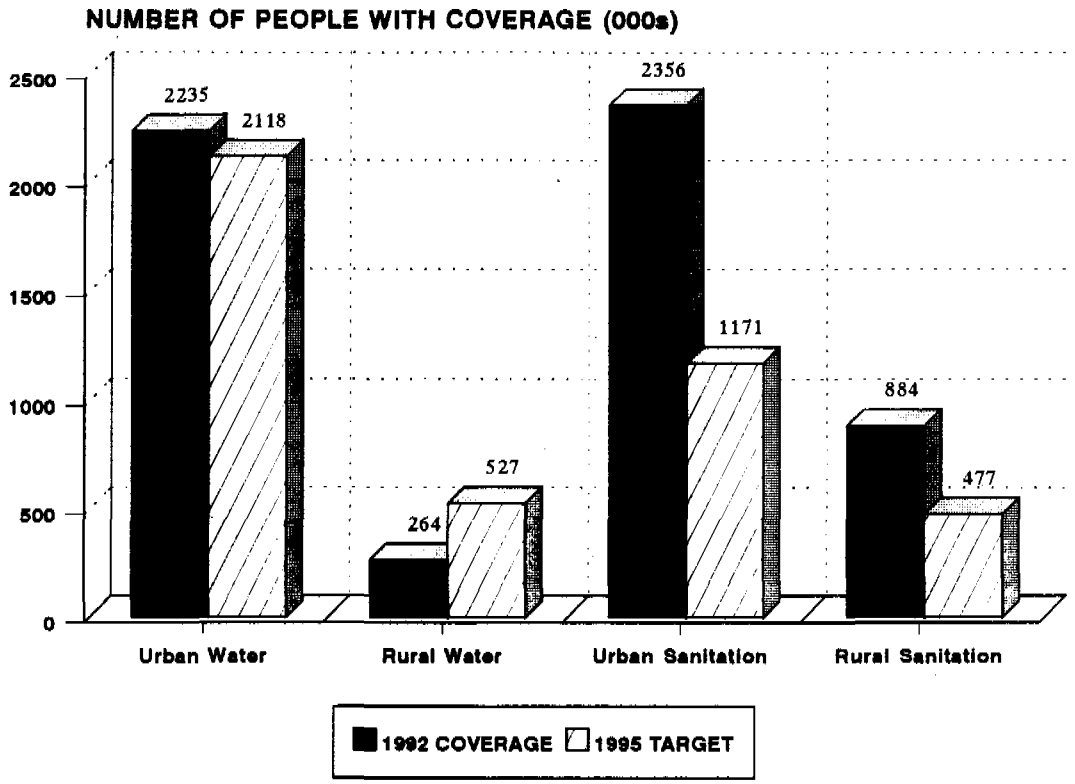

Figure 32

Nicaragua—1992 Coverage and 1995 Targets (number of people)

Rural Water and Sanitation

Based on the 1992 coverage figures, the 1995 sanitation target has already been met. Coverage in the water subsector, however, lags behind the target by 15 percent. This represents 263,000 people and new commitments of $19 million. According to PAHO's figures, however, coverage lags the target by 217,000 people in the water subsector and 322,000 in the sanitation subsector, for a total in new commitments of $28 million, equally divided between the two subsectors.

Chapter 8

PANAMA

8.1 Country Background

COUNTRY PROFILE Panama	
Population (1992)	
Total	2,514,400
Urban	1,350,200 (53.7%)
Rural	1,164,200 (46.3%)
Population Growth Rate	
Total (1991)	1.9%
Urban (1985-90)	2.7%
Rural (1985-90)	1.4%
Infant Mortality Rate (1991)	18
Under 5 Mortality Rate (1991)	20
Mortality Rate due to Infectious and Parasitic Diseases (1990)	22.6
Mortality Rate due to Diarrheal Diseases (1990)	9.0
Life Expectancy (1992)	72.7
Adult Literacy Rate (1990)	88%
GNP per Capita (1990)	$1,830
GNP per Capita Annual Growth (1965-90)	1.4%
Currency	Balboa 1 = US$1
Average Annual Inflation (1980-90)	2.3%

The Republic of Panama lies on the isthmus south of Central America. Although Panama has a per capita GNP second only to Costa Rica in the region, the country suffered massive contractions in its economy in the late 1980s. Political and economic instability climaxed in December 1989 with the ousting of its head of state. The new government has begun a program of economic reform, but many economic and social problems persist. An estimated one-third of the population lives at the poverty level, suffering a severe housing shortage exacerbated by the damage of the U.S. military intervention in 1989.

Panama also faces a shortage of health-care services. Over the past decade, however, there have been some improvements in the health status of the population, as indicated by downward trends in infant and overall mortality. The health system stresses immunization and has successfully achieved high immunization rates among infants. Compared with many other Central American nations, Panama has relatively high water and sanitation coverage, yet water-related diseases remain a challenge. Though not a leading cause of death among the general population, intestinal diseases rank second as a cause of death among newborns in rural areas, first among children aged one to four, and second among children between five and 14 (PAHO).

Like its Central American neighbors, Panama's rural areas and urban barrios have inadequate water and sanitation systems. Peri-urban settlements, swollen by the housing shortage and an urbanization trend, have little or no access to sewerage systems and continue to rely on latrines for excreta disposal. Fecal contamination of Panama Bay is a serious environmental problem, as are solid waste disposal in urban areas and industrial waste and insecticide contamination of waterways.

The Ministry of Health and the National Institute of Water Supply and Sanitation Systems (IDAAN) are responsible for promoting and implementing water and sanitation activities. The Ministry of Health serves communities of fewer than 500, while IDAAN serves communities of 500 or more. Master planning in the sector is coordinated by the Ministry of Health, in collaboration with IDAAN and the Ministry of Planning and Political Economy.

8.2 Current Coverage Levels

Tables 26 and 27 show estimates of past and current (1992) access to water supply and sanitation facilities, compared to the 1995 WASH targets for the four subsectors. Ninety-eight percent of the urban population has access to both water and sanitation. In rural areas, coverage is estimated at 64 percent for access to water and 75 percent for access to sanitation facilities.

Table 26

Panama—Water Supply Coverage vs. Targets

WATER SUPPLY									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	1,977	1,527	77%	1,003	913	91%	974	614	63%
BASELINE 1984	2,157	1,643	76%	1,127	1,116	99%	1,030	527	51%
1985	2,249	1,831	81%	1,195	1,183	99%	1,054	648	61%
1988	2,305	1,981	86%	1,230	1,220	99%	1,075	761	71%
1989	2,393	1,890	79%	1,305	1,095	84%	1,088	795	73%
1990	2,315	1,920	83%	1,208	1,105	91%	1,107	815	74%
1992	2,514	2,068	82%	1,350	1,323	98%	1,164	745	64%
TARGETS FOR 1995	2,659	2,293	86%	1,459	1,357	93%	1,200	936	78%

Population figures are rounded to the nearest thousand.

Table 27

Panama—Sanitation Coverage vs. Targets

SANITATION									
		ALL AREAS		URBAN AREAS			RURAL AREAS		
YEAR	TOTAL POP.	POP. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POP. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POP. SERVED	% OF POP. SERVED
1980	1,977	1,225	62%	1,003	650	65%	974	575	59%
BASELINE 1984	2,157	1,367	63%	1,127	687	61%	1,030	680	66%
1985	2,249	1,424	63%	1,195	729	61%	1,054	695	66%
1988	2,305	1,856	81%	1,230	1,071	87%	1,075	785	73%
1989	2,393	1,924	80%	1,305	1,094	84%	1,088	830	76%
1990	2,315	1,944	84%	1,208	1,094	91%	1,107	850	77%
1992	2,514	2,196	87%	1,350	1,323	98%	1,164	873	75%
TARGETS FOR 1995	2,659	2,314	87%	1,459	1,342	92%	1,200	972	81%

Population figures are rounded to the nearest thousand.

The trends in coverage (see Figures 33 and 34) demonstrate that over the last decade Panama has achieved a steady increase in both its rural and urban sanitation subsectors. For urban water, the near-universal coverage reported in the early 1980s has only now been regained; the apparent drop in coverage in the late 1980s coincided with the political and economic upheaval of that period. In the rural water subsector, the apparent decline of 10 percent over the last two years may simply be a function of different methodologies employed in making the estimates. In this case, a 10 percent drop also represents a drop in the absolute number (70,000) of people served. If the decline is real, the most likely explanation is that rural water systems are deteriorating at a faster rate than the construction of new systems.

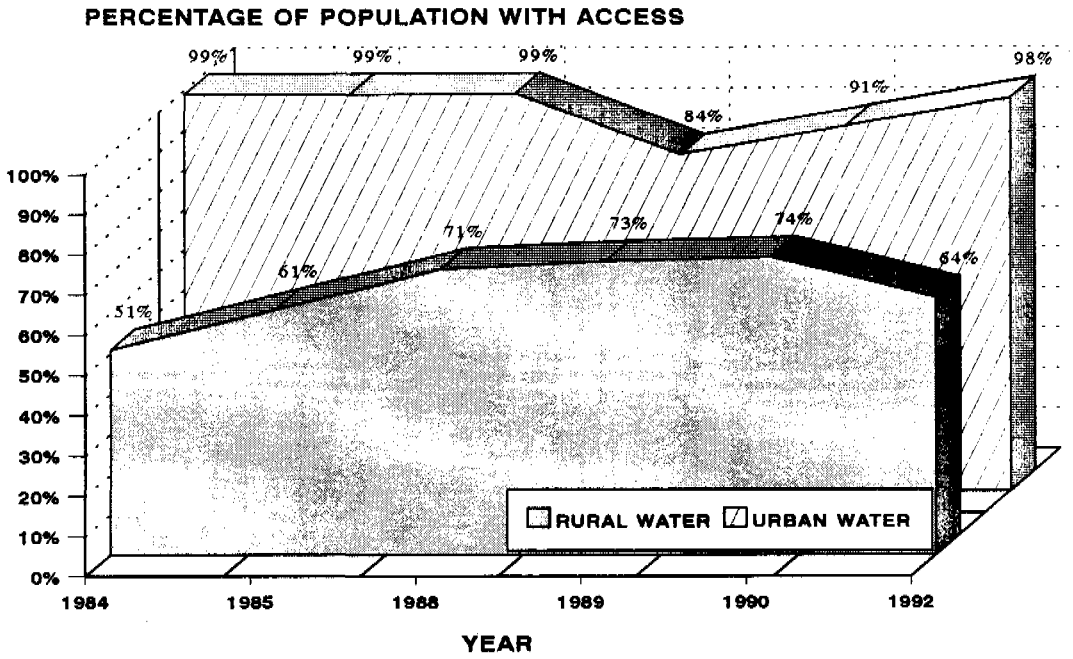

Figure 33

Panama—Urban and Rural Water Supply Coverage

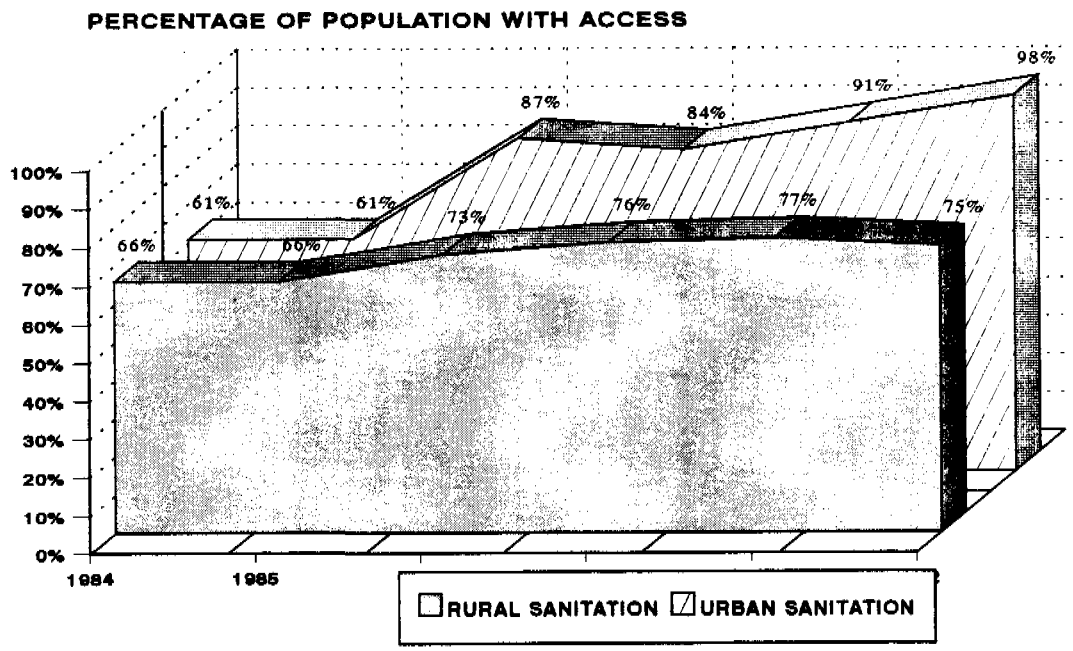

Figure 34

Panama—Urban and Rural Sanitation Coverage

8.3 Investments in Water and Sanitation

Only two external agencies currently have commitments for the extension of water and sanitation services (see Table 28). The increase in commitments—from $500,000 in 1990 to $15 million in 1993—is solely the result of new financing by IDB.

Table 28

Panama—Funding Commitments by Sector, 1993-95 (in 1992 US$, 000s)

Donor	Water Supply		Sanitation		Total
	Urban	Rural	Urban	Rural	
IDB	15,000				15,000
UNICEF	42	42	37	37	158
TOTAL	15,042	42	37	37	15,158

Although the 1995 targets have been met in the two urban subsectors, new investments of $6 million in sanitation will be required to keep pace with the urban population growth (see Table 29 and Figure 35). For the rural subsectors, where the current coverage lags targets and commitments are modest, $23 million will be required in additional investments.

Table 29

Panama—Investment Needed to Meet 1995 Targets (in 1992 US$, 000s)

	Water Supply Coverage (Persons—000s)			Sanitation Coverage (Persons—000s)			Total Funding Required
	Total	Urban	Rural	Total	Urban	Rural	
Target for 1995 (000s)	2,293	1,357	936	2,314	1,342	972	NA
Coverage in 1992	2,068	1,323	745	2,196	1,323	873	NA
Required Increase	255	34	191	118	19	99	NA
Estimated Unit Cost (US $ Per Capita)	NA	176	112	NA	331	21	NA
Estimated Total Cost to Meet 1995 Targets (000s)	$27,376	$5,984	$21,392	$8,368	$6,289	$2,079	$35,744
Firmly Committed Investments (000s)*	$15,084	$15,042	$42	$74	$37	$37	$15,158
Projected Funding Shortfall (000s)**	$21,350	($9,058)	$21,350	$8,294	$6,252	$2,042	$29,644

**Includes only those investments to increase coverage.*

***The shortfall calculation assumes that funding in excess of a subsector's requirement for the 1995 targets will remain allocated to that subsector, allowing the expansion of services to exceed WASH's targets.*

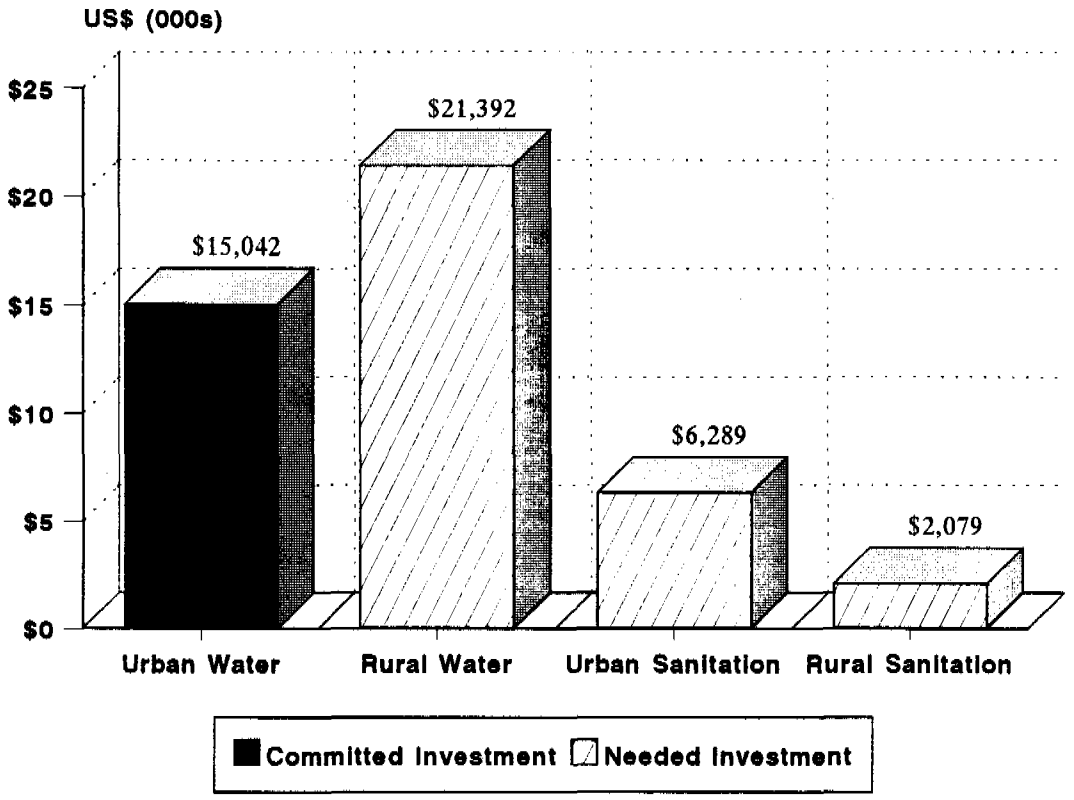

Figure 35

Panama—Investment Needed to Meet 1995 Targets

8.4 Meeting the 1995 Water and Sanitation Targets

The 1995 targets for water and sanitation coverage were developed in 1990, based on the high coverage rates then reported. Therefore, relatively small increases in the percentages and numbers of people (see Figures 36 and 37) covered are required to meet the targets. However, with only two donors funding the extension of services, additional funds will be required to reach the 1995 rural sector goals. In the face of continuing political and economic instability, additional funds may not be forthcoming.

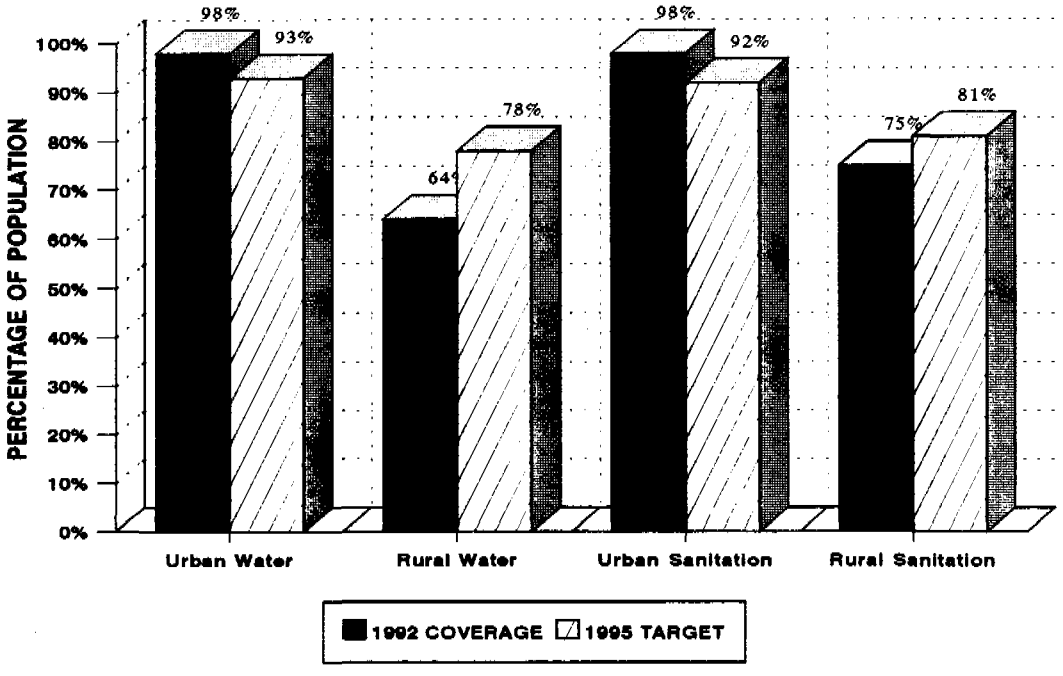

Figure 36

Panama—1992 Coverage and 1995 Targets (percent of population)

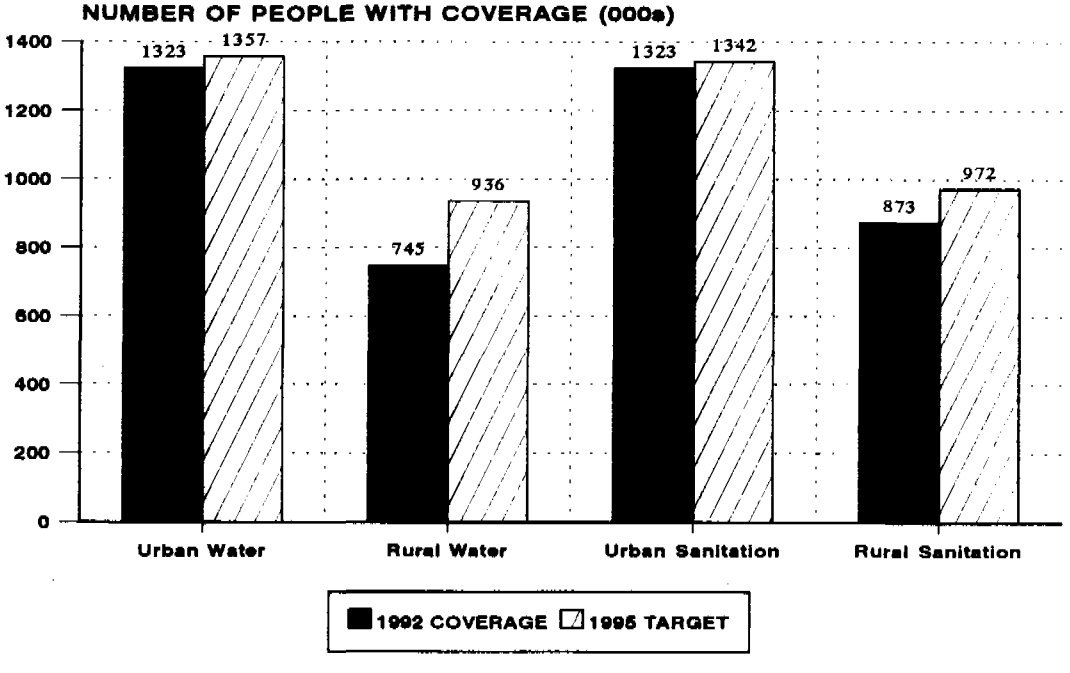

Figure 37

Panama—1992 Coverage and 1995 Targets (number of people)

Urban Water and Sanitation

The focus of current funding commitments is on the rehabilitation and improvement of existing water systems in the urban areas; a portion of these funds are used in this analysis as extending water services. Assuming no transfer of funds between subsectors, no new funds will be required in the water subsector between now and 1995. However, to meet the target in the sanitation subsector, Panama must provide sanitation service to 19,000 more people before 1995. These improvements will cost $6 million, of which less than 1 percent currently is committed.

Rural Water and Sanitation

In rural Panama, access to water and excreta disposal systems also is relatively high in comparison with other Central American nations. However, coverage still lags behind the 1995 targets by 14 and 6 percent for the water and sanitation subsectors, respectively. According to these estimates, 191,000 additional people will require water supply services and 100,000 will require sanitation facilities by 1995. The total cost of providing these services is $23 million, of which $21 million will be needed for the provision of water systems. Current commitments in the rural sector amount to only $80,000. The shortfall in funding averages $7.8 million a year over the next three years.

Chapter 9

REGIONAL SUMMARY FOR CENTRAL AMERICA AND PANAMA

9.1 Introduction

The progress charted in this report (1990-1992) as well as the progress documented by the series of reports (1980-1992) must be viewed within the economic and political context of the region over the last decade. The region has been racked by several civil wars, a U.S. military intervention, high military expenditures, rising external debts, and slow economic growth. Despite these conditions, which clearly undermine development efforts, there has been slow but steady progress in the region's water and sanitation sector.

For a comparison across the seven countries of the region, the data presented earlier are summarized in this section. With the incorporation of both Nicaragua and Panama in the fourth, most recent report (Field Report 334, August 1991), the regional summaries now provide an assessment of all seven countries in the region. One or both of these countries were excluded from the three earlier reports (Field Report 301, June 1990, Field Report 253, May 1989, Field Report 209, May 1987). In addition, an expanded summary of investment by donor and by country (see Table 30) is included in this report for the first time.

9.2 Access to Water and Sanitation Services in 1992

In 1992, access to water supply services in the region averaged 63 percent and access to sanitation services averaged 67 percent (see Figure 38). This is a 7 percent increase in water coverage since 1980, and a 25 percent increase in sanitation coverage. More importantly, this increase represents 6.6 million people who have gained access to water and 11 million people who have gained access to sanitation facilities. Nevertheless, in the region as a whole, one out of three—or 10 million people—still lack access to these basic services. Water supply coverage in the individual countries ranged from a low of 47 percent in El Salvador to a high of 95 percent in Costa Rica (see Table 31). These rankings are unchanged from the 1991 report (1990 data). Coverage for sanitation services (see Table 32) ranged from a low of 49 percent in Guatemala to 97 percent in Costa Rica.

The reported coverage remains higher in urban than in rural areas, a disparity that has remained virtually unchanged during the last 12 years. The greater access to water supply in 1980 in the urban areas (83 percent), as compared to the rural (35 percent), has changed little; the current average for the region is 91 and 39 percent, respectively. Throughout the 1980s, approximately four out of five urban residents, but fewer than two out of five rural residents, had access to drinking water.

Although both the urban and rural areas have benefited from major improvements in the sanitation sector over the last 12 years, the gap between urban and rural coverage has, in fact,

widened. In 1980 the reported coverage for urban and rural areas was 54 and 32 percent, respectively; for 1992 the figures increased to 86 and 51 percent.

The region is still more rural than urban, with 53 percent of the population living in rural areas, although this ranges from 60 percent in Guatemala to 39 percent in Nicaragua. However, in all seven countries, the urban populations are growing faster than rural, and the region will become predominantly urban in the next decade. Most of this increase in the urban population will be in the peri-urban or informal sector. These areas are characterized by few or no public services, little infrastructure, substandard housing, and poor land sites such as steep hillsides, flood plains, or proximity to solid waste dumps.

Moreover, a lack of solid data on this population may already inflate the estimates of urban coverage so that the apparent discrepancy between urban and rural coverage is smaller than the reported figures indicate. Any comparison between urban and rural coverage must allow for the under-reporting of the peri-urban population. Unfortunately, because representative data for this population is almost non-existent, only very crude estimates of the magnitude of the bias are now possible.

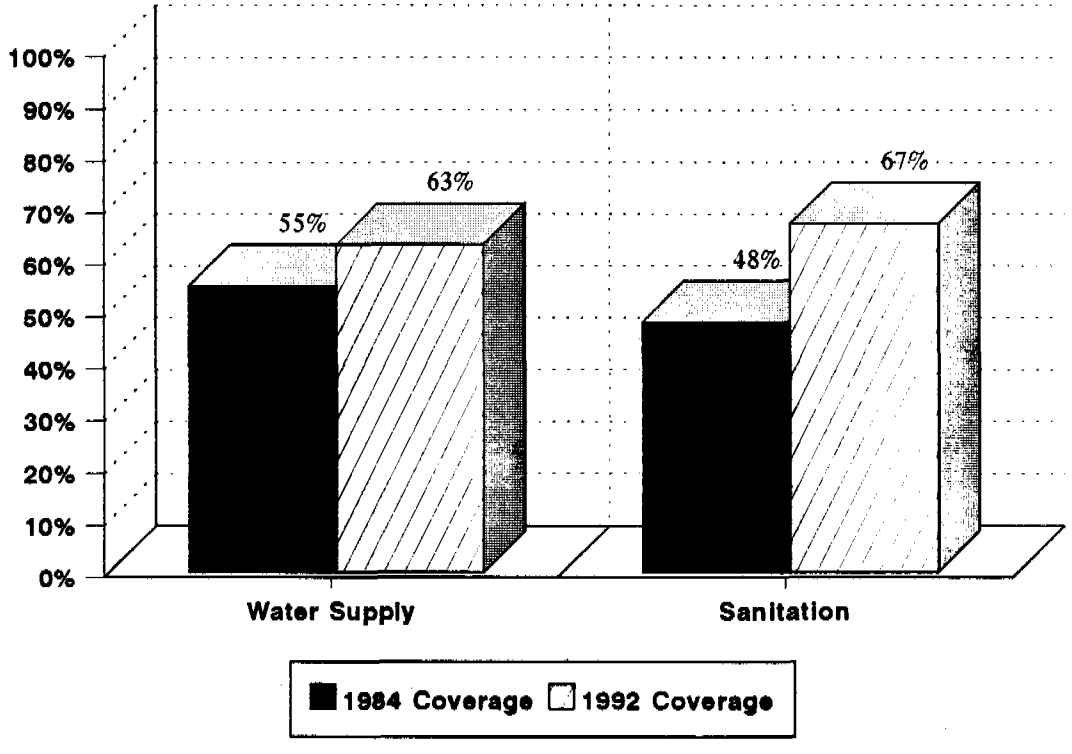

Figure 38

Central America and Panama—Regional Coverage: 1984 and 1992

Table 30

Funding Commitments by Donor (in 1992 US$, 000s)

	Belize	Costa Rica	El Salvador	Guatemala	Honduras	Nicaragua	Panama	Total
AID			6,000	6,400	4,850			17,250
CARE	49			63	767			879
CRS				208	930			1,138
CIDA					2,930	3,600		6,530
COSUDE					1,700	1,700		3,400
EEC								0
GTZ						500		500
IDB		36,000		5,000	55,000		15,000	111,000
JICA								0
KfW		6,900	5,000	13,200	930	6,250		32,280
NORAD/ASDI								0
OECF		7,000	5,000	3,500				15,500
SAVE THE CHILDREN			3,000		78			3,078
UNICEF	618	180	2,100	3,470	2,039	1,887	158	10,452
WORLD BANK		11,200			10,550			21,750
TOTAL	667	61,280	21,100	31,841	79,774	13,937	15,158	223,757

Table 31

Water Supply Coverage: 1980 to 1992

WATER SUPPLY										
		ALL AREAS			URBAN AREAS			RURAL AREAS		
COUNTRY	YEAR	TOTAL POPUL.	POPUL. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POPUL. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POPUL. SERVED	% OF POP. SERVED
BELIZE	1980	146	99	68%	73	71	97%	73	28	38%
	1984	156	98	63%	78	71	91%	78	27	35%
	1990	184	138	75%	97	92	95%	87	46	53%
	1992	196	158	81%	102	100	98%	94	58	62%
COSTA RICA	1980	2,210	1,960	89%	1,025	1,025	100%	1,185	935	79%
	1984	2,405	2,154	90%	1,070	1,059	99%	1,335	1,095	82%
	1990	3,015	2,859	95%	1,832	1,832	100%	1,183	1,027	87%
	1992	3,191	3,030	95%	1,536	1,536	100%	1,655	1,494	90%
EL SALVADOR	1980	4,540	2,330	51%	1,900	1,280	67%	2,640	1,050	40%
	1984	4,700	2,261	48%	1,980	1,445	73%	2,720	816	30%
	1990	5,200	2,500	48%	2,550	2,150	84%	2,650	350	13%
	1992	5,410	2,552	47%	2,452	2,109	86%	2,958	444	15%
GUATEMALA	1980	7,000	3,200	46%	2,700	2,400	89%	4,300	800	19%
	1984	7,800	3,500	45%	3,100	2,300	74%	4,700	1,200	26%
	1990	9,197	5,121	56%	3,771	3,462	92%	5,426	1,659	31%
	1992	9,767	5,405	55%	3,930	3,537	90%	5,837	1,868	32%
HONDURAS	1980	3,754	2,226	59%	1,368	1,272	93%	2,386	954	40%
	1984	4,299	2,726	63%	1,700	1,405	83%	2,599	1,321	51%
	1990	4,771	3,282	69%	1,948	1,628	84%	2,823	1,654	59%
	1992	5,092	3,298	66%	2,278	2,005	88%	2,751	1,293	47%
NICARAGUA	1980	2,746	1,094	40%	1,533	1,002	65%	1,213	92	8%
	*	3,959	1,660	42%	1,884	1,432	76%	2,075	228	11%
	1985	3,917	1,931	49%	2,319	1,645	71%	1,598	286	18%
	1990	3,979	2,498	63%	2,429	2,235	92%	1,550	264	17%
	1992									
PANAMA	1980	1,977	1,527	77%	1,003	913	91%	974	614	63%
	1980	2,157	1,643	76%	1,127	1,116	99%	1,030	527	51%
	1990	2,315	1,920	83%	1,208	1,105	91%	1,107	815	74%
	1992	2,514	2,068	82%	1,350	1,323	98%	1,164	745	64%
TOTAL	1980	22,373	12,436	56%	9,602	7,963	83%	12,771	4,473	35%
	1984	25,476	14,042	55%	10,939	8,828	81%	14,537	5,214	36%
	1990	28,599	17,751	62%	13,725	11,914	87%	14,874	5,837	39%
	1992	30,086	19,009	63%	14,077	12,845	91%	16,009	6,166	39%

Population figures are rounded to the nearest thousand.

** Data for Nicaragua reflects 1985 coverage figures.*

Table 32

Sanitation Coverage: 1980 to 1992

SANITATION										
		ALL AREAS			URBAN AREAS			RURAL AREAS		
COUNTRY	YEAR	TOTAL POPUL.	POPUL. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POPUL. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POPUL. SERVED	% OF POP. SERVED
BELIZE	1980	146	96	66%	73	43	59%	73	53	73%
	1984	156	97	62%	78	48	62%	78	49	63%
	1990	184	82	45%	97	64	66%	87	18	21%
	1992	196	138	71%	102	98	96%	94	40	43%
COSTA RICA	1980	2,210	2,044	92%	1,025	1,016	99%	1,185	1,028	87%
	1984	2,405	2,319	96%	1,070	1,059	99%	1,335	1,260	94%
	1990	3,015	2,947	98%	1,832	1,832	100%	1,183	1,115	94%
	1992	3,191	3,092	97%	1,536	1,536	100%	1,655	1,556	94%
EL SALVADOR	1980	4,540	1,600	35%	1,900	910	48%	2,640	690	26%
	1984	4,700	2,355	50%	1,980	1,485	75%	2,720	870	32%
	1990	5,200	3,299	63%	2,550	2,228	87%	2,650	1,071	40%
	1992	5,410	3,568	66%	2,452	2,060	84%	2,958	1,509	51%
GUATEMALA	1980	7,000	2,100	30%	2,700	1,200	44%	4,300	900	21%
	1984	7,800	2,600	33%	3,100	1,300	42%	4,700	1,300	28%
	1990	9,197	4,506	49%	3,771	2,715	72%	5,426	1,791	33%
	1992	9,767	4,794	49%	3,930	2,751	70%	5,837	2,043	35%
HONDURAS	1980	3,754	1,290	34%	1,368	670	49%	2,386	620	26%
	1984	4,299	2,560	60%	1,700	1,349	79%	2,599	1,211	47%
	1990	4,771	3,478	73%	1,948	1,599	82%	2,823	1,879	67%
	1992	5,029	3,188	63%	2,278	2,005	88%	2,751	1,183	43%
NICARAGUA	1980	2,746	942	34%	1,533	700	46%	1,213	242	20%
	* 1985	3,959	901	23%	1,884	659	35%	2,075	242	12%
	1990	3,917	942	24%	2,319	700	30%	1,598	242	15%
	1992	3,979	3,240	81%	2,429	2,356	97%	1,550	884	57%
PANAMA	1980	1,977	1,225	62%	1,003	650	65%	974	575	59%
	1984	2,157	1,367	63%	1,127	687	61%	1,030	680	66%
	1990	2,315	1,944	84%	1,208	1,094	91%	1,107	850	77%
	1992	2,514	2,196	87%	1,350	1,323	98%	1,164	873	75%
TOTAL	1980	22,373	9,297	42%	9,602	5,189	54%	12,771	4,108	32%
	1984	25,476	12,199	48%	10,939	6,587	60%	14,537	5,612	39%
	1990	28,599	17,198	60%	13,725	10,232	75%	14,874	6,966	47%
	1992	30,086	20,216	67%	14,077	12,129	86%	16,009	8,088	51%

Population figures are rounded to the nearest thousand.

** Data for Nicaragua reflect 1985 coverage figures.*

A comparison of the four subsectors for the region (see Figure 39) demonstrates that 91 percent (12.8 million) of urban residents have access to water supply service and 86 percent (12.1 million) have access to sanitary systems. In contrast, only 39 percent (6.2 million) of rural dwellers in the region have access to a water system, and only 51 percent (8.1 million) have access to sanitation facilities. A comparison between baseline (1984) and current (1992) coverage for the region shows gains of 10 percent and 3 percent for the urban and rural water sectors, respectively, and 26 percent and 12 percent for the urban and rural sanitation sectors, respectively. As indicated by these trends, gains in sanitation services have substantially outpaced increases in access to water services. In five of the seven countries, sanitation coverage among rural populations is higher than water coverage. According to UNICEF, the notable gains in sanitation are the result of major programs for installing low-cost latrines in all Central American countries.

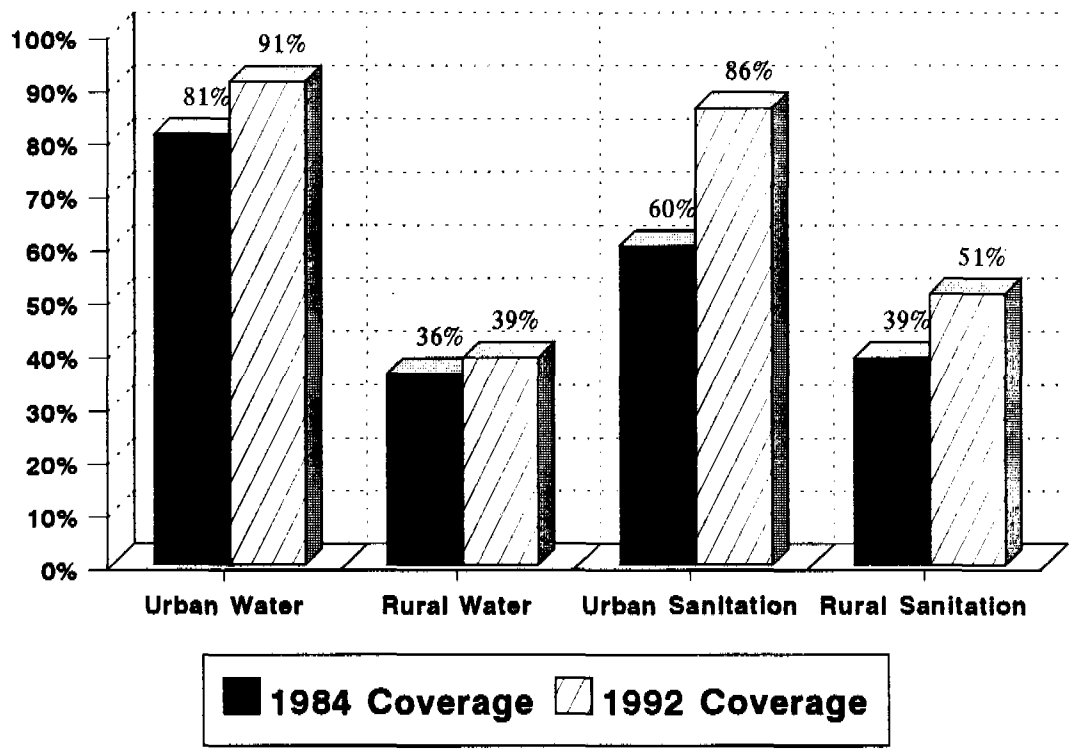

Figure 39

Central America and Panama—Rural vs. Urban Coverage: 1984 and 1992

In each country, the latest figures on water supply and sanitation generally show coverage similar to that reported in 1991. The most notable exception is Nicaragua, where current coverage, though substantially higher than in 1990, did not represent real gains (see section 2.7.2). In the water sector (see Figure 40), Belize, Costa Rica, and Panama provided coverage of 80 percent or more, whereas El Salvador had coverage of less than 50 percent. Honduras, Nicaragua, and Guatemala, with 66, 63, and 55 percent, respectively, provided moderate access to water facilities. In sanitation (see Figure 41), Belize, Costa Rica, Nicaragua, and Panama provided high overall coverage (over 70 percent), while Guatemala provided the lowest level (49 percent). El Salvador and Honduras, at 66 and 63 percent, respectively, provided intermediate levels of coverage.

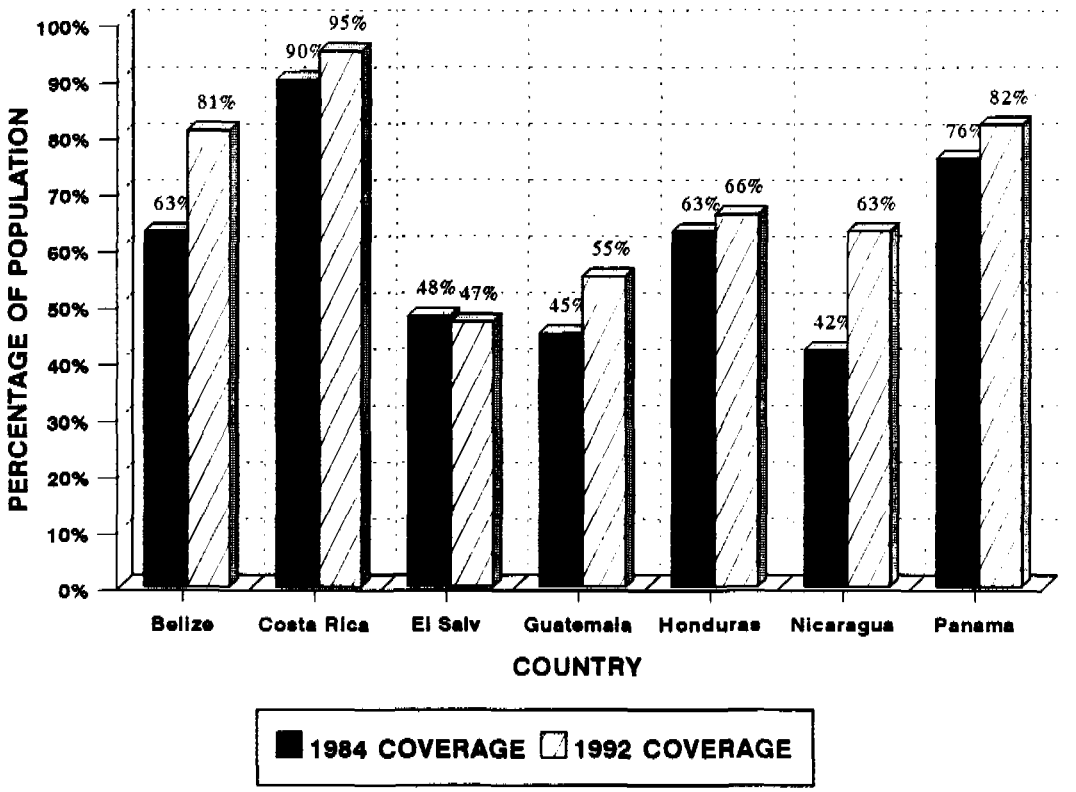

Figure 40

1984 and 1992 Water Supply Coverage (combined urban and rural)

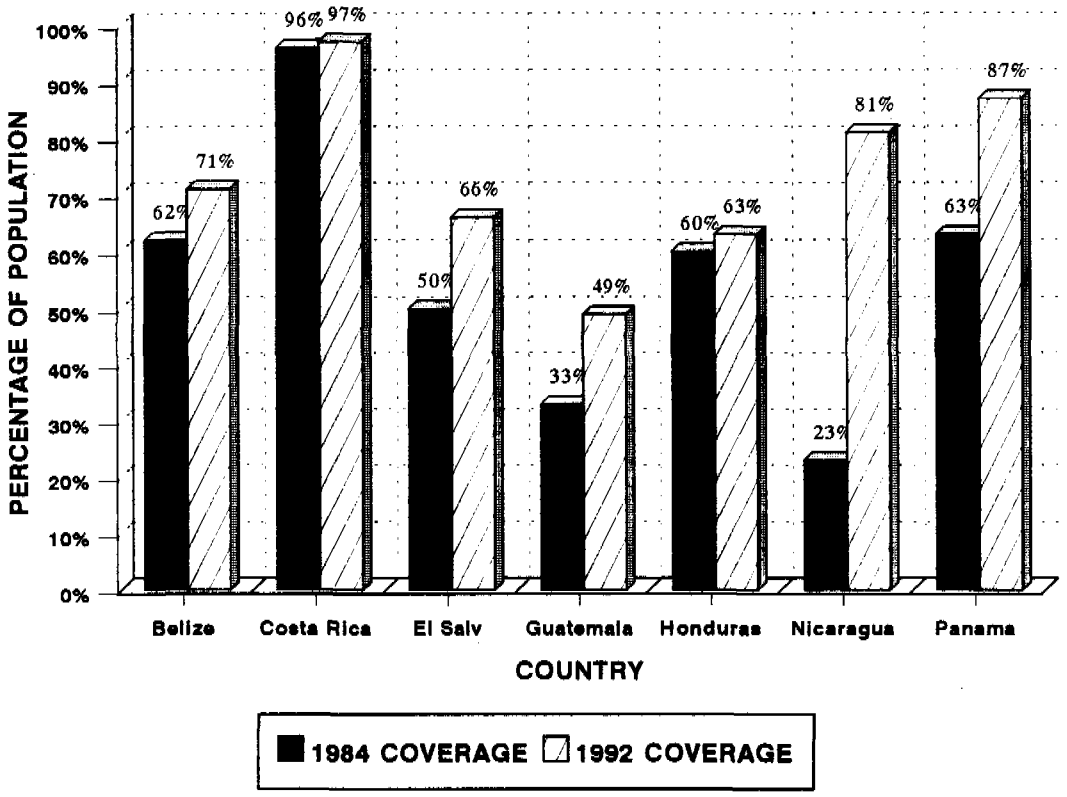

Figure 41

1984 and 1992 Sanitation Coverage (combined urban and rural)

9.3 Meeting the 1995 Water and Sanitation Targets

With the deadline past for attaining the goals set under the Central American Initiative, WASH developed new targets in the 1989 update, which are estimates of the progress required by 1995 if full coverage in both water and sanitation services is to be achieved by 2020. These revised targets are the percentage goals for urban and rural access to water services and at least basic sanitation facilities in each country. The targets for the combined subsectors (e.g., urban and rural, or water and sanitation) are adjusted, usually 1 to 2 percent, for estimated population changes. These targets do not necessarily reflect each country's current development plans for the sector. Targets for Nicaragua and Panama were established for the first time in the 1991 update. Sanitation coverage objectives for Guatemala were revised to reflect data provided by the A.I.D. Mission. These new country goals altered the regional targets.

The 1992 coverage levels are compared to the WASH targets for each country and for the region as a whole (see Tables 33 and 34). Regional targets for water coverage are now 89 percent for urban areas and 52 percent for rural populations, for an overall goal of 70 percent for 1995. The sanitation goals are 80 percent for urban areas and 58 percent for rural areas, for a total of 69 percent for the combined groups.

Table 33

Water Supply Coverage: 1992 Coverage Levels vs. 1995 Targets

WATER SUPPLY										
		ALL AREAS			URBAN AREAS			RURAL AREAS		
COUNTRY	YEAR	TOTAL POPUL.	POPUL. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POPUL. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POPUL. SERVED	% OF POP. SERVED
BELIZE	1992	196	158	81%	102	100	98%	94	58	62%
	1995	214	187	87%	112	104	93%	102	83	81%
COSTA RICA	1992	3,191	3,030	95%	1,536	1,536	100%	1,655	1,494	90%
	1995	3,424	3,217	94%	1,702	1,702	100%	1,722	1,515	88%
EL SALVADOR	1992	5,410	2,552	47%	2,452	2,109	86%	2,958	444	15%
	1995	5,768	3,284	57%	2,692	2,207	82%	3,076	1,077	35%
GUATEMALA	1992	9,767	5,405	55%	3,930	3,537	90%	5,837	1,868	32%
	1995	10,621	6,831	64%	4,404	4,096	93%	6,217	2,735	44%
HONDURAS	1992	5,029	3,298	66%	2,278	2,005	88%	2,751	1,293	47%
	1995	5,968	4,735	79%	2,844	2,673	94%	3,124	2,062	66%
NICARAGUA	1992	3,979	2,498	63%	2,429	2,235	92%	1,550	264	17%
	1995	4,433	2,645	60%	2,787	2,118	76%	1,646	527	32%
PANAMA	1992	2,514	2,068	82%	1,350	1,323	98%	1,164	745	64%
	1995	2,659	2,293	86%	1,459	1,357	93%	1,200	936	78%
TOTAL	1992	30,086	19,009	63%	14,077	12,845	91%	16,009	6,166	39%
	1995	33,087	23,192	70%	16,000	14,257	89%	17,087	8,935	52%

Population figures are rounded to the nearest thousand.

Table 34

Sanitation Coverage: 1992 Coverage Levels vs. 1995 Targets

SANITATION										
		ALL AREAS			URBAN AREAS			RURAL AREAS		
COUNTRY	YEAR	TOTAL POPUL.	POPUL. SERVED	% OF POP. SERVED	TOTAL URBAN POP.	POPUL. SERVED	% OF POP. SERVED	TOTAL RURAL POP.	POPUL. SERVED	% OF POP. SERVED
BELIZE	1992	196	138	71%	102	98	96%	94	40	43%
	1995	214	190	89%	112	104	93%	102	86	84%
COSTA RICA	1992	3,191	3,092	97%	1,536	1,536	100%	1,655	1,556	94%
	1995	3,424	3,338	97%	1,702	1,702	100%	1,722	1,636	95%
EL SALVADOR	1992	5,410	3,568	66%	2,452	2,060	84%	2,958	1,509	51%
	1995	5,768	4,076	71%	2,692	2,477	92%	3,076	1,600	52%
GUATEMALA	1992	9,767	4,794	49%	3,930	2,751	70%	5,837	2,043	35%
	1995	10,621	6,251	59%	4,404	3,391	77%	6,217	2,860	46%
HONDURAS	1992	5,029	3,188	63%	2,278	2,005	88%	2,751	1,183	43%
	1995	5,968	4,928	83%	2,844	2,616	92%	3,124	2,312	74%
NICARAGUA	1992	3,979	3,240	81%	2,429	2,356	97%	1,550	884	57%
	1995	4,433	1,648	37%	2,787	1,171	42%	1,646	477	29%
PANAMA	1992	2,514	2,196	87%	1,350	1,323	98%	1,164	873	75%
	1995	2,659	2,314	87%	1,459	1,342	92%	1,200	972	81%
TOTAL	1992	30,086	20,216	67%	14,077	12,129	86%	16,009	8,088	51%
	1995	33,087	22,745	69%	16,000	12,803	80%	17,087	9,943	58%

Population figures are rounded to the nearest thousand.

These targets seek to raise regional water coverage from the current 63 percent to 70 percent in 1995, and sanitation coverage from 67 percent to 69 percent. Based on current population trends, approximately 4.2 million more people will require access to water and 2.5 million to sanitation in the next three years. A breakdown of the number of additional persons to be served in each country (see Table 35) demonstrates that Guatemala and Honduras account for over two-thirds of the required new facilities and connections to meet the 1995 goals.

Comparing the seven countries for the water sector (see Figure 42) shows that Costa Rica and Panama are approaching or have attained their goals, and that Belize, Guatemala, Honduras, and El Salvador still have large gaps between current and target coverage. For the sanitation sector (see Figure 43), Costa Rica, Panama, and El Salvador are approaching or have attained their goals, while Guatemala, Honduras, and Belize still show large gaps. Nicaragua's condition is more ambiguous. Coverage in both sectors has surpassed the targets, largely because the 1995 targets were based on very low coverage estimates from 1990. If targets were revised to reflect the current estimates, Nicaragua would fall in with the group of countries with large gaps.

Table 35
Increase over 1992 Coverage Levels Required to Meet 1995 Targets
(Number of Persons to be Served—000s)

	Water			Sanitation		
Country	Total	Urban	Rural	Total	Urban	Rural
BELIZE	29	4	25	52	6	46
COSTA RICA	187	166	21	246	166	80
EL SALVADOR	732	98	633	508	417	91
GUATEMALA	1,427	559	867	1,457	640	817
HONDURAS	1,437	668	769	1,740	611	1,129
NICARAGUA	263	0	263	0	0	0
PANAMA	225	34	191	118	19	99
TOTAL	4,300	1,529	2,769	4,121	1,859	2,262

Population figures are rounded to the nearest thousand.

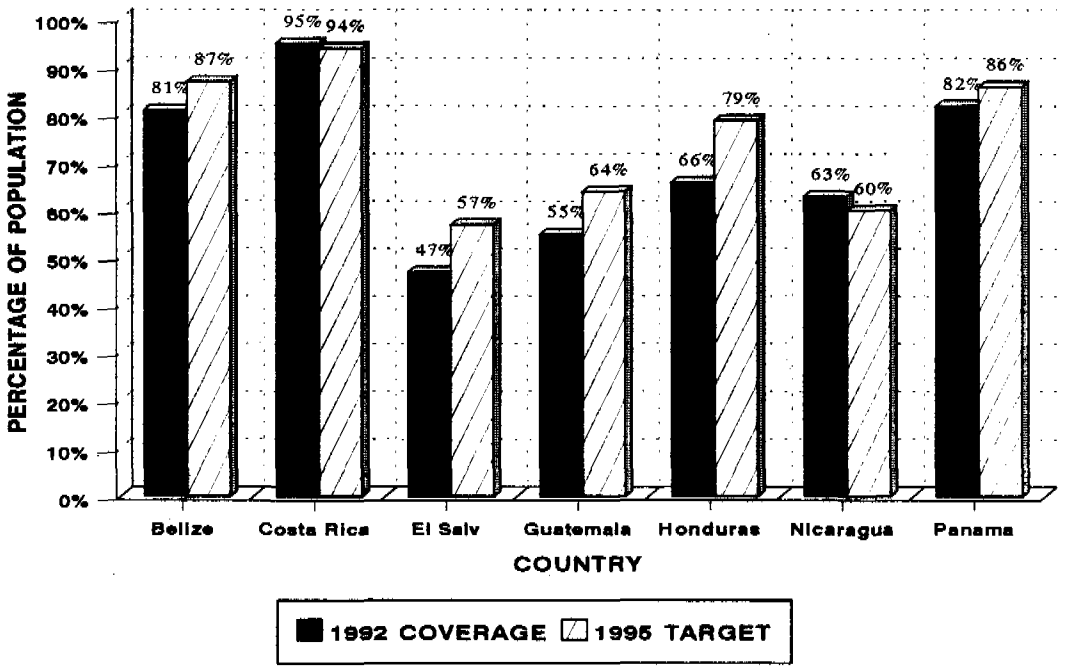

Figure 42

1992 Water Coverage vs. 1995 Targets (combined urban and rural)

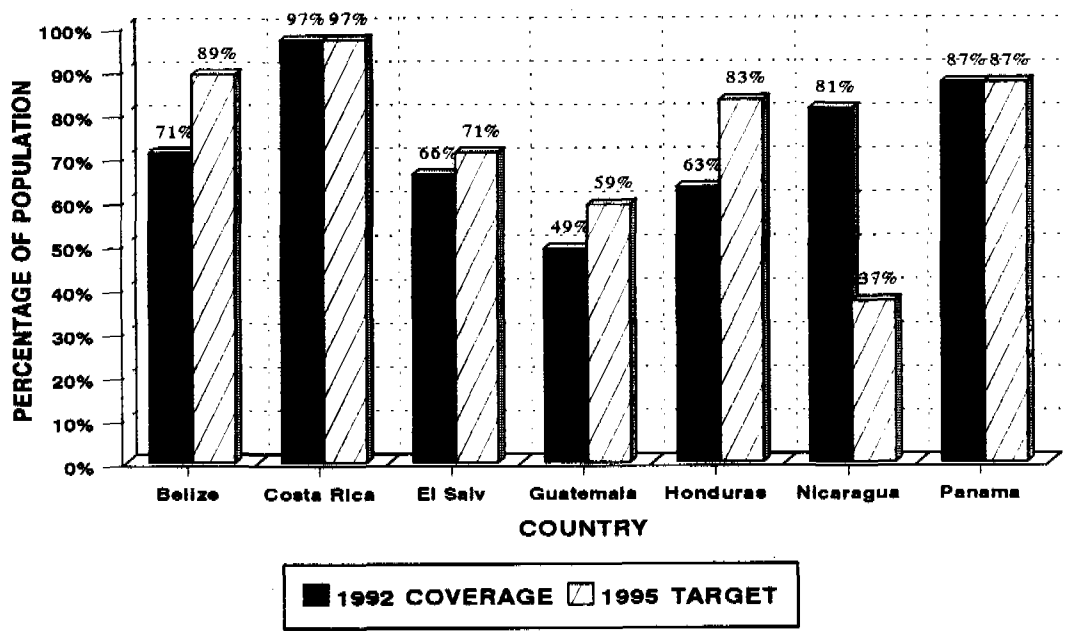

Figure 43

1992 Sanitation Coverage vs. 1995 Targets (combined urban and rural)

9.4 Investments in Water and Sanitation

The total investments required to meet the 1995 targets were calculated by multiplying the estimated number of additional persons needing coverage in each country (see Table 35) by the per capita cost of providing services. Unit costs (shown for each country in Tables 5, 10, 15, 20, 25, 30, and 35) are based on figures developed by PAHO. These cost estimates are increased by 5 percent a year across the region to account for inflation.

The estimates of external funding currently committed were based on information from the major donors traditionally working in the water and sanitation sector. It is possible that the total is underestimated, since some donors may have been overlooked and at least two did not respond to WASH's requests for funding data. In almost all cases, the donors stressed that funding information was a best guess—particularly for 1995 funding—with a sizable margin of error. In many cases, donors could not provide the information in the breakdown requested, and WASH was required to make judgements based on the information available and the methods used in previous reports (see section 1.4). Therefore, any serious analysis of the capital flows to the sector in Central America is undermined by the reliability of the funding data.

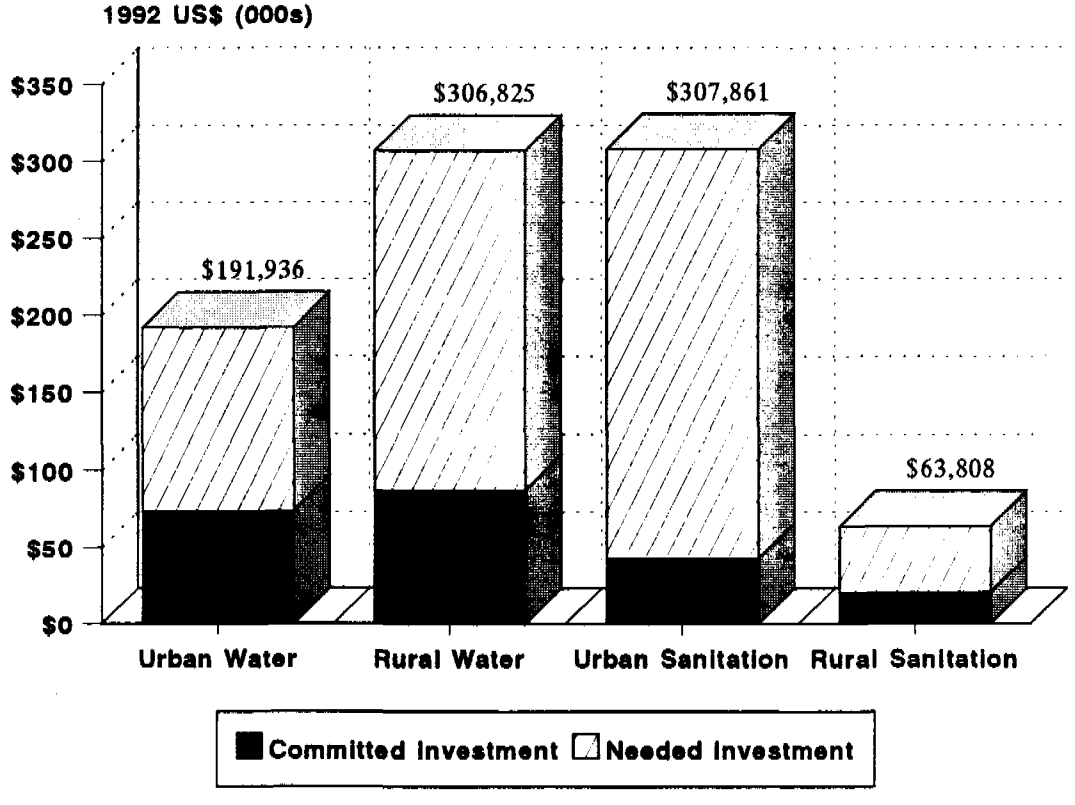

Figure 44

Central America and Panama—Total Investment to Meet 1995 Targets

The difference between the total costs ($841 million) and the committed funding ($224 million) gives the amount of investment still required (see Table 36). The difference of $617 million in addition to the "excess commitments" for certain subsectors in certain countries (totaling $29 million), which presumably would not be transferred, leaves a total shortfall of $647 million. An analysis of funding needs by subsector for the region as a whole (see Figure 44) shows that the greatest total costs are in the urban sanitation and rural water subsectors although the greatest shortfall ($265 million) is in the urban sanitation subsector.

Table 36

Estimated Funding Needed to Meet 1995 Targets (in 1992 US$, 000s)

Country	Water Supply			Sanitation			Total
	Subtotal	Urban	Rural	Subtotal	Urban	Rural	
BELIZE—Meet 1995 Goals	$4,988	688	4,300	5,928	684	5,244	10,916
Committed Funding	$184	0	184	483	0	483	667
Required Investment	$4,084	688	4,116	5,445	684	4,761	10,249
COSTA RICA—Meet 1995 Goals	$28,618	26,560	2,058	30,024	27,224	2,800	58,642
Committed Funding	$25,530	20,600	4,930	35,750	33,600	2,150	61,280
Required Investment	$5,960	5,960	(2,872)	650	(6,376)	650	6,610
EL SALVADOR—Meet 1995 Goals	$87,972	20,874	67,098	40,419	38,371	1,638	128,319
Committed Funding	$15,500	2,500	13,000	5,600	2,500	3,100	21,100
Required Investment	$72,472	18,374	54,098	36,281	36,281	(1,462)	108,753
GUATEMALA—Meet 1995 Goals	$166,990	52,546	114,444	82,369	68,480	13,889	249,359
Committed Funding	$25,343	3,500	21,843	6,498	0	6,498	31,841
Required Investment	$141,647	49,046	92,601	75,871	68,480	7,391	217,518
HONDURAS—Meet 1995 Goals	$142,993	71,476	71,517	192,026	157,027	34,999	335,019
Committed Funding	$69,869	27,250	42,619	9,905	3,518	6,387	79,774
Required Investment	$73,124	44,226	28,898	182,121	153,509	28,612	255,245
NICARAGUA—Meet 1995 Goals	$23,144	0	23,144	0	0	0	23,144
Committed Funding	$9,240	4,750	4,490	4,697	3,000	1,697	13,937
Required Investment	$18,654	(4,750)	18,654	(4,697)	(3,000)	(1,697)	18,654
PANAMA—Meet 1995 Goals	$27,376	5,984	21,392	8,368	6,289	2,079	35,744
Committed Funding	$15,084	15,042	42	74	37	37	15,158
Required Investment	$21,350	(9,058)	21,350	8,294	6,252	2,042	29,644
TOTAL TO MEET 1995 GOALS	$482,081	178,128	303,953	359,134	298,485	60,649	841,215
*Committed Funding	$160,750	73,642	87,108	63,007	42,655	20,352	223,757
Required Investment	$338,011	118,294	219,717	308,662	265,206	43,456	646,673

** Includes $29,216 in "excess" funding. These "excess" commitments have been excluded from the total required investments, because it cannot be assumed that these funds will be transferred to other subsectors.*

An analysis of the shortfall by sector (see Table 37) shows that needs are greater in urban ($384 million) than in rural areas ($263 million) and roughly equal for water ($338 million) and sanitation ($309 million). An analysis by country (see Figure 45) shows that Honduras and Guatemala account for almost three-quarters of the shortfall. El Salvador, and probably Nicaragua, account for most of the remainder. The shortfalls in Panama, Belize, and Costa Rica are relatively small amounts. The annual shortfall for each country over the next three years is estimated (see Table 38).

The amount currently committed, $224 million, is roughly equal to the amount committed in 1990; external investments appear to have remained stable for the region. However, investments rose in two of the three countries (Costa Rica and Panama) where the need is minimal, and fell or remained steady in three of the four countries (El Salvador, Guatemala, and Honduras) where the need is greatest. Moreover, there is little indication from donors that their investments in the region will rise to the level needed to meet the targets.

Table 37

Estimated Funding Shortfall to Meet 1995 Targets (in 1992 US$, 000s)

	Urban Areas			Rural Areas			
Country	Subtotal	Water	Sanitation	Subtotal	Water	Sanitation	Overall
BELIZE	$1,372	688	684	8,877	4116	4,761	10,249
COSTA RICA	$5,960	5,960	0	650	0	650	6,610
EL SALVADOR	$54,655	18,374	36,281	54,098	54,098	0	108,753
GUATEMALA	$117,526	49,046	68,480	99,992	92,601	7,391	217,518
HONDURAS	$197,735	44,226	153,509	57,510	28,898	28,612	255,245
NICARAGUA	0	0	0	18,654	18,654	0	18,654
PANAMA	$6,252	0	6,252	23,392	21,350	2,042	29,644
TOTAL	$383,500	118,294	265,206	263,173	219,717	43,456	646,673

"Excess" funding is represented as 0.

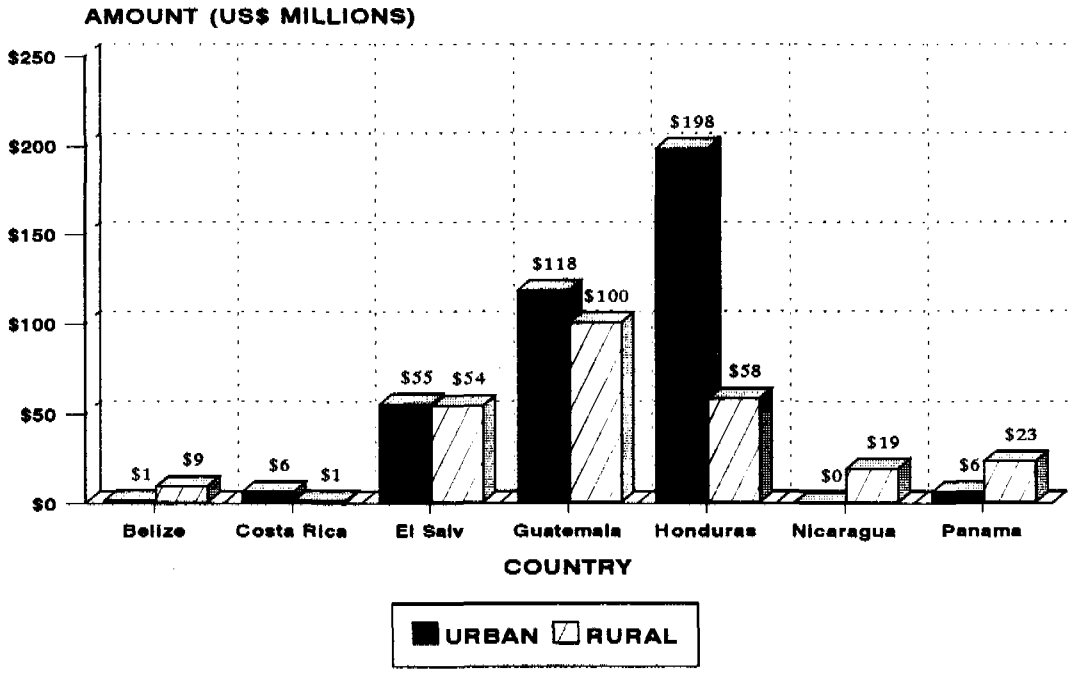

Figure 45

Estimated Funding Shortfall (urban and rural)

Table 38

Annual Costs to Fund Shortfalls and Meet 1995 Targets (in 1992 US$, 000s)

	Urban Areas			Rural Areas			
Country	Subtotal	Water	Sanitation	Subtotal	Water	Sanitation	Overall
BELIZE	$457	229	228	2,959	1,372	1,587	3,416
COSTA RICA	$1,987	1,987	0	217	0	217	2,203
EL SALVADOR	$18,218	6,125	12,094	18,033	18,033	0	36,251
GUATEMALA	$39,175	16,349	22,827	33,331	30,867	2,464	72,506
HONDURAS	$ 65,912	14,742	51,170	19,170	9,633	9,537	85,082
NICARAGUA	0	0	0	6,218	6,218	0	6,218
PANAMA	$2,084	0	2,084	7,797	7,117	681	9,881
TOTAL	$127,833	39,431	88,402	87,724	73,239	14,485	215,558

Annual costs determined by dividing total funding needed by three (for FY 1992-1995).

Chapter 10

CONCLUSIONS

10.1 Introduction

The prospects for meeting the 1995 goals vary substantially from country to country. A number of factors will determine the progress or lack thereof over the next three years. These include the general economic conditions in each country, the creditworthiness of each government, and, notwithstanding the continuing cholera epidemic, the possible decline in donations as some agencies reduce or eliminate contributions to the sector or the region.

A.I.D., along with the KfW, UNICEF, and CIDA, has played a significant role in expanding water and sanitation services in Central America, particularly in rural areas. Financing for activities in municipal areas comes primarily from IDB and the International Bank for Reconstruction and Development (IBRD). Currently, much of this funding supports system rehabilitation and upgrading rather than service expansion. In the urban sector, A.I.D. should continue to focus on providing services to marginal, low-income communities where coverage is particularly low.

The most critical funding shortages in the region are in Guatemala and Honduras. Conditions in Nicaragua are probably equally severe, although a definite estimate could not be established using this study's methodology. El Salvador is in need of funding to boost coverage for rural areas, which have dangerously inadequate water and sanitation. These four countries should continue to be priorities for future assistance.

In most cases, the financing of water and sanitation projects involves both local and external financing. With growing inflation, indebtedness, and other financial difficulties, there is little funding available for local investments in the sector. A.I.D.'s water and sanitation projects are normally funded with Development Assistance (DA) funds, or in urban areas, through the Housing Guarantee (HG) Program. These projects often involve counterpart funding. However, because of the dearth of local funds, A.I.D. has sometimes financed the local component through the Economic Support Fund (ESF). A.I.D. may have to use a combination of ESF and DA money to finance the local and external shares of future water and sanitation projects. A.I.D. also may be able to assist countries in local capital formation to increase the availability of local funds for projects in the sector.

The current decentralization of water and sanitation agencies, from the national office to the cities, has brought clear improvements in the provision of services. With local program and financial control, city governments have been both more accountable and more responsive to local needs. WASH supports this trend, which helps extend services and encourage more efficient use of resources.

Another advance in Central America's water and sanitation sector was the formation of the Regional Water and Sanitation Network for Central America (RWSN-CA). In 1990 the RWSN was conceived as a focal point for inter-agency collaboration across the region. The RWSN was developed jointly by the leading external support agencies (ESAs) involved in the development of the sector UNDP, UNICEF, IDB, USAID, WASH, PAHO/WHO, CAPRE/GTZ, the Swiss Development Cooperation, CIDA, and the World Bank. A regional field unit was installed, with two full-time staff members, in the UNICEF regional headquarters in Guatemala city in mid-1992.

The objectives of the RWSN-CA are:

- to establish a national network in each member country,
- to promote and develop information exchange mechanisms,
- to promote the sustainable development of institutions and human resources,
- to develop coordination between ESAs and member countries, and
- to develop national sector policies in collaboration with the ESAs.

Achievements to date include the provision of technical assistance, an analysis of the spending and organization of Guatemala's water and sanitation sector, and the promotion of low-cost and community-based technologies. The formation of the RWSN-CA has been increasing Central America's capacity to absorb the additional funds needed to meet water and sanitation targets and improve the health and living conditions of the rural and peri-urban poor.

10.2 WASH's Lessons Learned

This update, like previous reports, has focused on one aspect of water and sanitation: the construction of facilities to increase access to water supplies and sanitary excreta disposal. However, in its work over the past 13 years, WASH has demonstrated that the provision of services is only part of the solution in improving public health impact through better water and sanitation. The results of a 1992 survey of latrines in Honduras, for example, show that only a small fraction met basic use, maintenance, and operation requirements.

Health and hygiene education is also particularly critical in both rural and urban areas. In rural communities throughout Central America, where diarrheal and intestinal diseases contribute significantly to infant and child mortality and morbidity, changes in hygiene behavior are as critical to improved health as the provision of facilities.

In urban areas, where other sources of pollution are becoming increasingly problematic, environmental education and improvements are also critical. Proper disposal of solid waste and industrial waste is essential to ensure safe water supplies in urban centers.

In supporting the expansion of water supply and sanitation facilities, it is insufficient to commit resources to local institutions that often lack the capacity to absorb them. Training in such

areas as operations and maintenance is critical to ensuring the sustainability of water supply and sanitation improvements. Improvements also are needed in planning, in developing information systems, and in reducing water leakage in urban systems. Given the existing funding gaps, it is important for these nations to seek alternative methods of financing, such as cost-recovery or tariff schemes. The current trend in the decentralization of water and sanitation activities from the national to municipal offices, which provides for greater accountability and responsiveness to local needs, should be supported. The development and transfer of inexpensive appropriate technologies, particularly those that will increases use, also is vital to ensure that systems can be installed and maintained efficiently.

National and community-level participation in planning, execution, and maintenance is important to ensuring the success of water and sanitation programs. In addition, although private enterprise does not play a prominent role in the sector, it may be possible to expand this role in system maintenance and operation, financing, project design, construction, and the provision of materials and supplies.

Central America faces a formidable challenge in the water supply and sanitation sector in the 1990s. The goals established either by external agencies such as A.I.D. or by national or regional entities require substantial resources. To meet these goals, the various agencies, institutions, and communities must form partnerships at both the policy and operational levels, with a long-term commitment to build and maintain the systems.

The region must also cope with the increasing urbanization, the growth in peri-urban populations, and the continued degradation of the peri-urban environment. The levels of environmental contamination will undoubtedly rise in the foreseeable future from untreated human, industrial, and medical wastes; from uncollected solid wastes; and from unknown types and quantities of hazardous wastes. Ongoing efforts to provide universal access to water and sanitation must take place within the broader context of environmental health planning, or the improvements seen in human health as a result of greater access to water supplies and sanitation facilities may be negated by the health impacts of environmental contamination.

Appendix A

Scope of Work

LAC Bureau
WS&S Coverage and Environmental Health Indicators
Planning Document for Central America

January 26, 1993

Background

Human health depends to a large extent on environmental conditions, including the availability of adequate drinking water, sewage and excreta disposal services, and the reduction of biological, physical, and chemical pollution. In Latin American countries, rapid urbanization, economic development, and industrialization have brought with them environmental health problems. Increasingly scarce water resources are now contaminated by both chemical contamination from industrial effluent and agricultural pesticide runoff as well as by biological pollution from inadequate collection and management of human excreta, sewage, and solid wastes.

Throughout Central America, water supply and sanitation coverage varies considerably. Investment levels by donors to increase coverage likewise vary widely from country to country and over time. In planning new investments to address water supply and sanitation coverage deficiencies, it is important to know what the coverage levels are in a particular country and what funds are being committed by the different donor agencies to build new facilities and increase coverage. This information permits planners to focus limited resources on those areas of greatest need and where investments by other donors are lacking.

In recognition of the deficiency of useful planning information that relates committed and proposed funding to coverage needs, A.I.D.'s LAC Bureau in 1986 commissioned WASH to prepare a report fulfilling this need. The report, entitled **Planning for Central America Water Supply and Sanitation Programs,** Field Report No. 209, was produced in 1987. The Bureau found the document useful and requested updates of the report in 1989 (F.R. 253), 1990 (F.R. 301), and 1991 (F.R. 334). The original Central American report served as a model for similar WASH efforts for the South American/Andean Region, the Caribbean, Africa, and Asia.

In addition to the challenge of meeting basic water and sanitation coverage, over the past five years it has become increasingly evident that exploding urbanization has led to widespread environmental degradation, creating problems such as water pollution from industrial effluent and untreated municipal sewerage, and poor solid waste collection and management. In 1990,

the LAC Bureau recognized the need for a systematic effort to identify indicators that could be used to measure progress at improving the health-related environment. The LAC Bureau requested WASH to develop appropriate indicators and gather selected data in order to assess and prioritize regional problems in the area of environmental health. The study was to review water, sanitation, solid waste, and related vector control issues, including such issues as water quality and sources of groundwater and surface pollution. In addition, the study was to identify donors and programs working to mitigate the ill effects of environmental deterioration as it affects health. The final WASH report was to identify key indicators for monitoring progress at improving the health-related environment, and detailing environmental findings, conclusions, and recommendations on priorities for relevant LAC Bureau programs.

WASH Task 225 was initiated in January 1991 in order to implement the study on environmental health indicators described above. Activities carried out under Task 225 to date have included researching past experiences with environmental indicators in the United States and other developed countries, extensive discussions with the World Bank and other international institutions embarking on similar efforts in developing countries, and a case study data collection field trip to Tegucigalpa, Honduras (in June 1991). With concurrence from the LAC Bureau, work on Task 225 was suspended in November 1991, pending completion of *a new WASH task, Assessment Tools for Identifying & Prioritizing Environmental Health Problems,* Task 315, because the results of the risk assessment in Quito are a critical input to this effort. The Quito field work was carried out in June 1992. The Quito Risk Assessment report is expected to be finalized in January 1993.

WASH has a current commitment to collect secondary data on water and sanitation coverage to update the **Planning for Central America Water Supply and Sanitation Programs** report during 1993. WASH recommended and LAC agreed that the new round of data collection for Central America be expanded to include additional environmental health indicators identified through the work on Tasks 225 and 315 described above. In order to accomplish this, WASH will close the current environmental health indicators task (Task 225) and put the remaining funds in a new task that will produce an updated and expanded version of the **Planning for Central America Water Supply and Sanitation Programs** report.

TASKS

1. Identify key indicators that the LAC Bureau may monitor to determine whether health-related environmental conditions in individual cities are improving or deteriorating over time. Examples of environmental indicators that may be identified include:

- Environmental pollution indicators,
- Epidemiological data, and
- Major sources of environmental health problems (i.e sources of pollution: industries, waste disposal, etc.).

The consultant(s) will consider results of recent work by WASH and other organizations in identifying the set of environmental health indicators to be addressed in this task.

The consultant(s) will examine the WASH environmental health assessment for Quito, Ecuador (Task 315); the learnings to date from WASH environmental health indicators task (Task 225); the evaluation of urban environmental indicators for RHUDO cities recently completed by the World Resources Institute for APRE/H; and surveys of urban environmental indicators conducted by the World Bank, PAHO, and others.

2. After the development of a draft list of key indicators, conduct a one-day workshop with participation from key players in A.I.D. (LAC/Health, LAC/Env, R&D/Health, APRE/H, etc.) and other organizations to achieve consensus on which indicators are the most appropriate and operationally practical to collect and monitor. A well designed set of indicators will reflect careful attention to the human health aspects of the problem or process being monitored and will account for the other requirements and constraints of the monitoring agency and the users of the data.

3. Collect and analyze existing data and prepare a report on water and sanitation coverage, and additional water supply- and sanitation-related indicators of environmental health.

Update the data in the most recent **Planning for Central America Water Supply and Sanitation Programs** report (F.R. 334, August 1991) for each of the countries in Central America (including Belize and Panama) in each of the four sectors currently used in the report: urban water, urban sanitation, rural water, and rural sanitation. In addition, and if possible, urban water and sanitation data should be disaggregated between urban and peri-urban/informal sector areas.

Develop a brief discussion of the water and sanitation programs in each of the countries. Based on objectives for improving coverage that have been previously determined with the LAC Bureau for past planning reports, determine the level of investments required to attain those objectives and present a funding analysis that compares committed funding from all donors with the levels of investment required. The report will also include a full discussion of the data, identify trends and policy-related issues that affect increasing coverage (cost recovery, tariff structures, legislation, etc.), and summarize results and conclusions.

In addition to the coverage data described above, gather existing baseline data for the additional environmental health indicators identified in steps 1 and 2 above in selected **cities** in Central America and report on the status of health-related environmental conditions in these cities. This effort also will not involve collecting original data. To the extent possible, the consultants will obtain information from primary and secondary sources in the United States, including a review of written materials and interviews with staff at the IDB, PAHO, the World Bank, World Resources Institute, and AID/APRE/H. The consultant also will request that USAID missions collect and provide data for this task. If it is found that critical environmental health data do not currently exist, WASH will recommend a plan to LAC for collection of that data in the future.

Based on the data collected on the environmental health indicators, identify the region's most important environmental health problems and recommend priorities for follow-up action by the LAC Bureau and other donors. These recommendations should be based on information obtained during this task regarding the strategic objectives and programs of USAID missions in Central America, the policy and regulatory frameworks in effect in Central American countries that are relevant to the environmental problems being examined, and existing efforts to address such problems.

It will probably be necessary to send one or more persons on TDY to Central America to obtain these data. Local professionals, nongovernmental organizations (NGOs), or institutes also may be contracted to provide services.

To the extent possible and reasonable, the data gathered should be integrated and presented in a coherent manner that reflects the inter-relationship among the various environmental health data and indicators collected.

4. Work with RWSN-CA to identify and use existing efforts by national, bilateral, regional, and international agencies to collect data from which the designated indicators may be derived. A specific effort should be made to explore collaboration with the **Water Supply and Sanitation Sector Monitoring System** (WASAMS) currently being implemented by RWSN-CA members UNICEF and PAHO/WHO.

Propose to the LAC Bureau a plan whereby the AID/LAC Bureau and other donors can monitor the most important environmental health indicators for Central America, using data from various agencies and collecting original data where warranted. Explore the possibility of "housing" the collected data base in the RWSN-CA offices in Guatemala City as well as institutionalizing the process of ongoing data collection and monitoring as a collaborative effort of the RWSN-CA. If appropriate, this latter effort may include the joint development with the RWSN-CA staff of a computerized database that would allow for effective updating and manipulation of the data. This activity will also be piggy-backed with other ongoing efforts by WASH to develop collaborative activities with the RWSNCA.

PRODUCT

One report will be produced for this task. The report will be an updated and expanded version of the existing series of reports entitled, **Planning for Central America Water Supply and Sanitation Programs.** As a minimum, the report will include all data and follow the same format as the existing reports. As described in section 3, one possible modification to the existing format is that urban data will be disaggregated between formal urban areas and informal/informal sector areas. In addition, data, analysis, and discussion regarding additional environmental health indicators as described in section 3 should be integrated into this report. As in past reports, the final document should have a separate appendix for each country. Recognizing that certain environmental indicators will only make sense within an urban context, each country appendix may have a separate section on a key city or cities. The primary responsibility for drafting this report falls to the main consultant. Final editing will be carried out by WASH.

Personnel and Level of Effort:

Activity	Personnel	Number of Days
Task 1 and 2	WASH specialist on risk assessment	10 days
	Input from other WASH staff and consultants during a one-day workshop	4 days
	Workshop facilitator	2 days
Tasks 3 and 4	Main consultant will have general background in water and sanitation, analytical skills, data collection skills and experience, and good writing skills; speak Spanish; and be competent with word processing and database programs.	75 days
	Task manager	10 days
	In-country consultants who will gather secondary data	35 days (5 days each country)
	Information specialist	5 days
Total		141

SCHEDULE

Task 1: begin February 1, 1993, and end February 19, 1993. The date for the one-day workshop is to be determined.

General data collection should begin in early February. Specific environmental health data/indicators will be collected beginning February 22, 1993.

Draft of the final report should be ready May 1, 1993.

Review of draft report by USAID Missions and LAC Bureau: May 1-May 30.

Revised final draft submitted to WASH for editing: July 15, 1993.

Appendix B

DATA SOURCES

There were two main areas for which data were collected for this report:

- Access to water supply and sanitation, i.e., the coverage data, and
- Investments in the water supply and sanitation sector.

The sources for these data are detailed below.

1. ACCESS TO WATER SUPPLY AND SANITATION

BELIZE

The USAID mission in Belize provided the estimates for coverage for the four subsectors: urban water supply, rural water supply, urban sanitation, and rural sanitation. Combined coverage figures for the water supply and sanitation sectors were calculated based on the number of people with access in the subsectors and the total population figures provided by CIHI.

COSTA RICA

The 1992 coverage estimates for total water, urban water, total sanitation, and urban sanitation (as a percentage of the total and urban populations) were based on the following three sources: 1) the WASH 1990 estimate from Field Report 334, 2) the 1990 estimates from AyA, and 3) PAHO's 1993 estimates. Since all estimates were over 93 percent, the range of estimates was small. Rural water and sanitation coverage was calculated based on the total and urban coverage figures and the population figures provided by CIHI.

EL SALVADOR

The Planning Division of ANDA/EL Salvador (National Administration of Water Supply and Sewerage) provided the coverage data for 1991/92 for urban water, rural water, urban sanitation, and rural sanitation. These are expressed as a percentage of the urban and rural populations. The total coverage figures provided by ANDA were adjusted based on the population data provided by CIHI. The *number* of people with access to water in the rural and urban sectors were added, and then divided by the total population, to give the total coverage percentages. This changed the total percentages by 7.5 percent for water and 3 percent for sanitation. Although these percentage changes were greater than those of the other countries, the adjusted figures are closer to the PAHO estimates, which were the only other current estimates available.

GUATEMALA

No recent coverage data existed for Guatemala, therefore the data used in this report were derived from a combination of methodologies.

Rural water and sanitation

A retrospective analysis of funding by the *Secretaria de Recursos Hidraulicos* provided numbers of beneficiaries in rural water and sanitation for 1991. High and low estimates (three times and 1/3 the number in 1991, respectively) for 1992 were derived; these were added to the 1991 figures, which were added to the 1990 WASH estimates to derive a range of coverage for 1992. For rural water, the range was 29.8-31.9 percent; for rural sanitation, 33.0-44.9 percent. The exact figure chosen for this report was influenced by the opinions of in-country experts, an assessment of the overall political and economic situation in the country, and the PAHO 1993 estimates.

Urban water and sanitation

Still less information was available on the urban sector. WASH's 1990 estimates agreed with those of SEGEPLAN, the national planning agency. Given that urban growth exceeds rural, it is assumed that the coverage, at best, kept pace with population growth. However, based on the lower estimates by PAHO for 1993, WASH's 1990 figures were reduced slightly.

For both the rural and urban sectors, the total coverage figures were derived using the population figures provided by CIHI and the rural and urban coverage figures.

HONDURAS

Coverage data for urban water, rural water, urban sanitation, and rural sanitation (as a percentage of the urban and rural populations) were obtained from the *Encuesta Nacional de Epidemiologia y Salud Familiar* (ENESF), 1991/92. ENESF's data were adjusted to conform to WASH's definitions by combining the first two categories (faucet inside and outside, toilet and latrine). This gave the coverage figures used in this report.

These figures were expressed as a percentage of the urban and rural populations. The total coverage figures provided by the ENESF were adjusted, based on the population figures provided by CIHI. (The *number* of people with access to water in the rural and urban sectors were first added, then divided by the total population, to give the total coverage percentage). This changed the total coverage for water by 1 percent but did not alter the ENESF sanitation coverage figure.

NICARAGUA

Coverage data for urban water, rural water, urban sanitation, and rural sanitation (as a percentage of the urban and rural populations) were obtained from ENSSF/Nicaragua 1992-93. The first two categories (faucet inside the house, faucet outside the house) conformed best to the WASH definitions and were combined to give the coverage estimates. The total coverage figures provided by ENSSF were modified based on the population figures provided by CIHI. (The number of people with access to water from the rural and urban sectors was added, and that sum was divided by the total population to give the total coverage percentage). This changed the total percentages for water coverage by 4 percent and for sanitation coverage by 1 percent.

Estimates for 1993 from PAHO were the only other recent source of data for Nicaragua.

The PAHO figures did not include latrines in the urban coverage, nor did UNICEF's in a 1989 estimate of urban sewage coverage (48 percent). This is most likely the reason for the discrepancy between these data and the ENSSF data. Based on confidence in the survey methodology and the fact that in urban areas a very large percentage of the population does have some form of sanitation, the ENSSF data are used for this report. Clearly the large difference between WASH's 1990 and 1992 estimates is more a reflection of improved data collection and differences in definitions than any real improvement.

PANAMA

Coverage data for urban water, rural water, urban sanitation, and rural sanitation (as a percentage of the urban and rural populations) were obtained from the 1990 National Census. Although the categories are less precise than those used by WASH, these were the best estimates available. According to in-country experts, the situation probably has not improved since 1990, given the political, economic, and institutional crises that have occurred. In fact, the Office of Planning of IDAAN (National Institute for Water and Sewerage) had lowered estimates of urban water supply coverage in 1991 (no estimates for rural).

The total coverage figures provided by the census were modified to conform to population figures provided by CIHI. (The number of people with access to water from the rural and urban sectors first were added, then divided by the total population figures, to give the total coverage percentage). This changed the total percentages for water by 2 percent and for sanitation by 1 percent.

2. INVESTMENTS IN WATER SUPPLY AND SANITATION

The investment information was provided by the individual donors unless otherwise indicated below.

ASDI and NORAD

According to PAHO, the governments of Sweden and Norway, through their international development agencies, have funded MASICA, an environmental health project in Central America. This project primarily supports institution building efforts in collaboration with PAHO, and does not directly finance the expansion of water and sanitation services. Therefore, none of this funding was included in this analysis.

CANADIAN INTERNATIONAL DEVELOPMENT AGENCY (CIDA)

CIDA reported investments in three projects through CARE/CANADA. The first two, in Honduras and Nicaragua, each consisted of a multiyear, $5 million investment in rural water and sanitation. CIDA provided a breakdown of investments over the 1993-95 period; the breakdown between the water and sanitation sectors (one-quarter to sanitation and three-quarters to water supply) was made by WASH, based on the substantially greater unit costs of providing water supply in rural areas. The third project, an $11 million, eight-year project, is for the rehabilitation of systems in six secondary cities in Nicaragua; $1 million, or one-fourth of the estimated disbursements in the 1993-95 period, was included for extending coverage.

CARE

CARE supports rural water and sanitation projects in Belize, Guatemala, Nicaragua, and Honduras. CARE's projects are typically funded by a variety of external donors and government agencies. CARE reported firm commitments only for 1993, although funding is being sought for 1994-95.

In Belize, CARE/USA has committed almost $50,000 for 1993; no funding beyond 1993 is anticipated. Based on the unit costs of providing water supply and sanitation in the rural areas of Belize, WASH estimates that 60 percent of this funding will support the provision of water and 40 percent the provision of sanitation.

In Guatemala, CARE/USA channels over $60,000 in external funding. Based on the unit costs of providing water supply and sanitation in the rural areas of Guatemala, WASH estimates that 75 percent of this funding will support the provision of water and 25 percent the provision of sanitation.

For Nicaragua, CIDA is the primary financing agency for CARE's water and sanitation activities (reported under CIDA); no CARE monies are currently committed for Nicaragua.

For Honduras, CARE/Canada has committed over $750,000. Based on the unit costs of providing water supply and sanitation in the rural areas of Nicaragua, WASH estimates that 75 percent of this funding will support the provision of water and 25 percent the provision of sanitation.

CATHOLIC RELIEF SERVICES (CRS)

CRS's planned investments include six rural water and sanitation projects, two in Guatemala and four in Honduras. Four of the six projects are co-financed by European agencies (Caritas Norway and Caritas Austria) or USAID. The European funds were included in this analysis, but to avoid double counting, A.I.D. monies were excluded. Based on the relative unit costs of providing water supply and sanitation services in the rural areas, WASH estimates that 75 percent of these funds are for water supply and 25 percent for sanitation.

COSUDE (Swiss Development Agency)

Two rural drinking water and sanitation projects, one in Honduras and one in Nicaragua, were reported. The levels of investment were not broken out by sector. WASH has estimated, based on the relative unit costs of providing rural water and sanitation services, that 75 percent will be allotted to water supply and 25 percent to sanitation.

EUROPEAN ECONOMIC COMMUNITY (EEC)

Although the implementation continues of an EEC-funded rural water project in Honduras, no funds will be disbursed in 1993-95. A second rural project is currently being considered, but funds have not been committed at this point.

GERMAN AGENCY FOR TECHNICAL COOPERATION (GTZ)

Two projects were reported by GTZ as their investments in the sector for 1993-95. The first is a $1.4 million regional project providing El Salvador, Honduras, Nicaragua, and Costa Rica with technical assistance and institutional development. As such, it was excluded from this analysis. A second project for Nicaragua of $500,000 was included in its entirety for the urban sanitation sector.

INTERAMERICAN DEVELOPMENT BANK (IDB)

The IDB has commitments to five projects in four countries over the next three years, with at least one more (in El Salvador) being seriously considered. A portion of the urban investments are for upgrading existing urban systems and not directly for the extension of services. Therefore, only a portion of the total reported investments was included in this analysis.

JAPANESE INTERNATIONAL COOPERATION AGENCY (JICA)

Although JICA has investments in the water and sanitation sector in Central America, none was included in this report. Several projects are in the planning stage, and others are for garbage collection or for improving underground water resources and, therefore, did not fall under the category of commitments to extend coverage.

KfW (GERMAN RECONSTRUCTION LOAN COMPANY)

KfW will be supporting one urban and six rural projects in five countries of Central America. All projects include both water supply and sanitation components. The estimated breakdown of investments is 70 percent water supply and 30 percent sanitation in rural areas and 60 percent water supply and 40 percent sanitation in urban areas. The total amount estimated by KfW for disbursal during the 1993-95 period was used in this analysis.

In Costa Rica, disbursement for a long-delayed rural project—although formally underway—has yet to begin. KfW estimates that if disbursement begins soon, DM 11 million ($6.9 million) will be disbursed in the 1993-95 period. Because the loan contract has been signed, this full amount will be used in this analysis.

In El Salvador, the implementation of a long-delayed rural project has recently begun. An estimated DM 8 million (approximately $5 million) will be disbursed through 1995.

In Guatemala, KfW finances three rural projects, one continuing and two due to begin in mid-1994; an estimated DM 21 million ($13 million) will be disbursed during 1993-95.

In Honduras, a DM 15 million rural project is nearing completion with the final DM 1.5 million ($940,000) to be disbursed in 1993. A second project for the city of Danli and three other cities is still under discussion, and no firm commitment could be made as of May 1993. Therefore, this project was not included in this analysis.

In Nicaragua, a proposed urban project has recently undergone a feasibility study and awaits project appraisal. KfW estimates that financing for the project would total DM 30-40 million, of which about DM 10 million ($6.25 million) could be disbursed before 1995. Although highly dependent on the appraisal for final approval, these funds are committed by the German government and therefore will be included in this analysis.

OVERSEAS ECONOMIC COOPERATION FUND OF JAPAN (OECF)

Information provided by OECF's Washington office consisted of two recently completed loan agreements, both for financing the urban sector. In Costa Rica, a $13.8 million loan was made for an urban potable water supply project. The project in El Salvador is for a $10 million loan for water supply and sewerage system improvement. With few details on the projects themselves or the disbursement schedule, a judgement was made to include one-half of these investment in this analysis.

SAVE THE CHILDREN

In El Salvador, Save the Children will invest $3 million in 1993-94 in one rural water project. In Costa Rica and Nicaragua, no investments are committed as of May 1993, although plans are for increased programming in the urban sector in Costa Rica and in the rural sector in Nicaragua. In Honduras for 1993, Save the Children has committed $67,000 for rural water systems and $11,000 for rural sanitation for the extension of services; $10,000 not included

in this analysis is earmarked for basic sanitation training in communities where the construction of water and sanitation infrastructure is funded by other institutions.

UNICEF

UNICEF/Guatemala provided information for all of Central America. All or nearly all of UNICEF's investments were judged to be for the extension of services, and no portion was excluded from that reported by UNICEF.

USAID

The USAID missions provided information on AID's commitments to the sector. Three countries—Guatemala, El Salvador and Honduras—have planned programs in the sector for 1993-95.

Rough estimates of investments in El Salvador were based on a proposed $30 million water and sanitation component of the Public Services Improvement Project. Of the $30 million, external funding makes up $21 million, but only $12 million had been committed as of March 1993. Of the $12 million, some 40 percent was estimated to have been disbursed in the early years of the project (1990-2) and 10 percent of the remainder was excluded as it is allocated for rehabilitation of existing systems. The remaining $6 million was allotted 90 percent to rural water supply and 10 percent to rural sanitation.

In Guatemala the projected expenditures by USAID in the Highlands Water and Sanitation project over the next three years is almost $6.5 million. Based on the greater unit costs of providing water in the rural areas, WASH estimated that three-fourths would go to water supply and the remainder to sanitation.

USAID/Honduras reported on investments in two programs areas. The rural water and sanitation program consists of $3 million in funding over the next three years. USAID allocated 85 percent for water supply and 15 percent for sanitation activities. Funding for the urban sector is planned through the Municipal Development Office. Approximately $2 million remains of a $20 million project to improve water and sanitation in marginal areas. Based on the roughly equal unit costs of providing water and sanitation in the urban areas, WASH made the determination to allot 50 percent to each sector. Approximately $20 million more for projects in the urban sector were not included in this analysis because these funds were either for technical assistance and training or were not firmly committed as of April 1993.

WORLD BANK

Investments from the Infrastructure and Energy Division of the World Bank total $26 million, as part of a new $40 million urban water and sanitation program for San Jose, Costa Rica. Of this, less than half is earmarked for the extension of services, 33 percent is for water supply, and 10 percent is for sewage.

Investments for Honduras reported by the Human Resources Operations Division total approximately $17 million, of which $13 million fell under the Honduran Social Investment Fund Project (FHIS). The remaining approximately $4 million is earmarked for a rural water and sanitation program; the sectoral breakdown (60 percent for water supply) was provided by the World Bank. For the FHIS funds, the breakdown by sector and by year were based on the historical trend of disbursements during 1991-92 and included funds from other donors and the government. For this reason, only half of the reported FHIS funds were included in this analysis.

Another $19 million loan for water supply and drainage to the city of San Pedro Sula does not involve the extension of services and therefore was not included in this analysis.