ORGANIZACION PANAMERICANA DE LA SALUD

REGIONAL CONFERENCE ON WATER SUPPLY AND SANITATION

Evaluation of the International Drinking Water Supply and Sanitation Decade and Projections towards the Year 2000

Puerto Rico, 4-6 de September de 1990

Evaluation of the Drinking Water Supply and Sanitation decade (1981-1990) in Latin America and the Caribbean - an Outlook to the 1990s and Beyond

Report of the Collaborative Council of External Support Agencies

PAN AMERICAN HEALTH ORGANIZATION

EVALUATION OF THE DRINKING WATER SUPPLY AND SANITATION DECADE (1981-1990) IN LATIN AMERICA AND THE CARIBBEAN - AN OUTLOOK TO THE 1990s AND BEYOND

REPORT OF THE COLLABORATIVE COUNCIL OF EXTERNAL SUPPORT AGENCIES

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July 1990

PREFACE

The Collaborative Council of External Support Agencies (ESA) was established at an International Drinking Water Supply and Sanitation Consultation held in The Hague, The Netherlands, in November 1988. It is part of a Framework for Global Cooperation in Drinking Water Supply and Sanitation which has as its overall objective:

> "To maintain Decade momentum beyond 1990 and accelerate the provision of water supply and sanitation services to all, with emphasis on the unserved rural and periurban poor, by using a coordinated programme approach"
>
> Membership of the Collaborative Council is open to all interested multilateral and bilateral agencies, non-governmental organizations and appropriate international research institutions.

Prior to the Hague Consultation there had been three other international consultations among support agencies active in the water supply and sanitation sector: at Königswinter, Federal Republic of Germany, in October 1984; Paris, France, in May 1985; and Interlaken, Switzerland, in October 1987. There had also been three regional consultations: one for Asia in Manila, Philippines, in October 1985; one for Africa in Abidjan, Côte d'Ivoire, in November 1985; and one for the Americas in Washington D.C., USA, in April 1986. Between the Hague Consultation and the Sophia Antipolis meeting of the ESA Collaborative Council: an informal get-together of ESAs hosted by the Asian Development Bank in March 1989 in Manila discussed regional issues and prepared the ground for a regional consultation in Manila in June 1990; a round-table meeting of managers of water supply and sanitation agencies in Latin America, organized by the Pan American Health Organization, the UNDP/World Bank Programme and the Inter-American Development Bank, and held in Washington DC in May 1989, reported on regional issues; and a special meeting on Water Supply and Sanitation in the Caribbean Beyond 1990, co-sponsored by PAHO, UNDP and the Caribbean Development Bank, and held in St. Kitts in November 1989, analyzed sector issues at country and regional level. In addition, Temporary Working Groups (TWGs) established by the Collaborative Council had produced comprehensive reports on Applied Research and on Communication of Information, and the Council's 1990 Committee met in Paris in December 1988 and Geneva in June 1989, to review progress in collaborative efforts.

This report focusses mainly on the contributions of the Collaborative Council of ESAs to the Decade in the Latin American and Caribbean Region and the major water supply, sanitation and waste management issues that will require special attention in the 1990s by both Latin American and Caribbean country governments and external support agencies.

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EVALUATION OF THE DRINKING WATER SUPPLY AND SANITATION DECADE (1981-1990) IN LATIN AMERICA AND THE CARIBBEAN - AN OUTLOOK TO THE 1990s AND BEYOND

I. List of Abbreviations and Acronyms

ACUAVALLE	Sociedad de Acueductos y Alcantarillados del Valle de Cauca, Colombia
ADB	Asian Development Bank
AIDIS	Inter-American Association of Sanitary Engineering and Environmental Sciences
BMZ	German Federal Ministry for Economic Cooperation
CAD	Servicios de Agua y Drenaje de Monterrey, Mexico
CARE	Cooperation for American Relief Everywhere
CC	Collaborative Council of ESAs
CCCE	Caisse Central de Coopération Economique, France
CESI	Country External Support Information
CIDA	Canadian International Development Agency
COPOSA	Companhia de Saneamento de Minas Gerais, Brazil
DCM	Decade Consultative Meeting
the DECADE	International Drinking Water Supply and Sanitation Decade (1981-1990)
DGIS	Directorate General for International Cooperation, Netherlands
EDT	Total External Debt
EMOS	Empresa Metropolitana de Obras Sanitarias de Santiago de Chile, Chile
EPM	Empresa Públicas de Medellin, Colombia
ESA	External Support Agency
GNP	Gross National Product
GTZ	German Agency for Technical Cooperation
ICI	Instituto de Cooperación Iberoamericana, Spain
IDA	International Development Association (World Bank Group)
IDB	Inter-American Development Bank
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau (Germany)
LAC	Latin American and Caribbean

NGO	Non-Government Organization
ODA	Overseas Development Administration of the U.K.
OECF	Overseas Economic Cooperation Fund, Japan
O and M	Operation and Maintenance
OPEC Fund	OPEC Fund for International Development
OXFAM	OXFAM, U.K.
PAHO	Panamerican Health Organization
PR	Public Relations
RWSG	Regional Water and Sanitation Group (UNDP/World Bank WSS Programme)
SDC	Swiss Development Cooperation
SIDA	Swedish International Development Authority
TA	Technical Assistance
TDS	Debt Service Ratio
TWG	Temporary Working Group
UNCDF	UN Capital Development Fund
USAID	United States Agency for International Development
WASH	Water and Sanitation for Health Project, (funded by U.S. Agency for International Development)
WB/IBRD	World Bank
WHO	World Health Organization
WSS	Water Supply and Sanitation
WUSC	World University Service of Canada

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Other Acknowledgements

Valuable contributions have also been obtained through discussions with staff from the World Bank, IDB, PAHO, WHO, WASH and a number of individuals, who have wide sector experience in Latin America and the Caribbean.

EVALUATION OF THE DRINKING WATER SUPPLY AND SANITATION DECADE (1981-1990) IN LATIN AMERICA AND THE CARIBBEAN - AN OUTLOOK TO THE 1990s AND BEYOND

EXECUTIVE SUMMARY

The Latin American Background - Urbanization and Consequences

i) At the beginning of the International Drinking Water and Sanitation Decade (The Decade) the Latin American and Caribbean (LAC) countries were relatively well served with Water Supply and Sanitation (WSS), compared with other regions of the world. Throughout the eighties, urban sector utilities were generally well organized, especially in providing services to the middle and high income citizens. However, the rural and periurban populations were increasingly neglected. Moreover, the plight of the poor has been compounded during the Decade by fast urban growth and by the rapid increase of foreign debt in Latin America which is diverting scarce resources from social programmes.

ii) Urbanization in the LAC Region is progressing at an average rate (measured by population growth) of 3.6% per year (compared to a 2.4% average growth for total population of the LAC Region during the Decade). Total urban population is estimated in 1990 at about 326 million, representing more than 70% of the Region's total population. The proportion of urban dwellers is expected to reach about 80% by the year 2000. Up to one third of urban inhabitants in Latin America are estimated to be living below the poverty line and about half of them in destitute conditions. In some large urban agglomerations, Mexico City, Sao Paulo, Lima, up to half of the population is poor, living in periurban areas and shanty towns.

iii) With this surge of urban population, WSS services to the poor, in relative terms, are declining. Utility companies, many of which are financially weak, have no incentive to extend supplies to the low-income, fringe areas of cities, where potential cost recovery is low. As a consequence, many urban poor buy their drinking water from water vendors, sometimes at up to 35 times the cost of water from the cities' supply systems. The situation is similar with municipal waste disposal. On average only about half of the urban population benefits from this service; garbage collection for the other half is sporadic at best, often organized through the informal sector. Even collected garbage is often problematic, due to inadequate disposal facilities. In large sections of urban areas refuse just accumulates, increasing health risks and becoming a burgeoning threat for the environment.

iv) Overall urban water supply service coverage in LAC countries in 1989 was estimated at 84%; coverage of sanitary services was about 80%. In rural areas the coverage ratios for water supply and sanitation are 54% and 23%, respectively. This reflects a modest increase in both, water supply and sanitation, over 1980 service levels. However, these

statistics have to be qualified, inasmuch as they generally do not take into account broken-down or irregularly functioning systems, and because data are largely based on information collected by developing countries that is often incomplete.

The Major Issues

v) The assessment of the results of the Decade in the LAC Region shows clearly that the key issues to be addressed in the 1990s are linked to the major general problem areas of the Region:

a) the high level of external debt;
b) rapid urbanization; and
c) the protection of the environment.

vi) If substantial acceleration of service coverage is to be achieved in the 1990s, these issues require urgent attention. In this context, ESAs should concentrate their efforts in the LAC Region on (a) alleviation of social impacts resulting from economic adjustment programmes; (b) water supply, sanitation and waste management services to the urban poor; and (c) environmental protection measures, with special emphasis on overall urban sanitation and water resources management. All of these measures require a considerable degree of institutional development and increased absorptive capacity of the sector.

Required Strategies and Actions in the 1990s and Beyond

vii) With these priorities in mind and recognizing that resources for the WSS sector are not likely to increase in relative terms in the foreseeable future, the external support community, in close collaboration with developing country government authorities, should seek ways and means of streamlining their inputs. This effort should primarily be directed at the LAC countries through joint strategies and approaches and harmonized technologies, so as to optimize scarce resources. This endeavor has already begun with the creation in 1988 of the Collaborative Council of External Support Agencies (ESA), an informal mechanism of donor coordination, but it needs to further orient the thrust of its work to "front activities", at the country level.

viii) Specifically, ESAs should consider the following sector priority areas for their assistance programmes in the 1990s in the LAC Region:

- urban poverty alleviation programmes, with strong water supply, sanitation and solid waste disposal components;

- environmental protection, with emphasis on overall urban sanitation and water resources management;

- strengthening and building sector institutions, both for urban and rural areas, in the former stressing financial management and in the latter community management;

- concentrate WSS sector planning and design on the concept of effective demand;

- development of alternative service supply methods and appropriate technologies for periurban areas;

- provide support for health protection-oriented measures, for example control of diarrhoeal diseases, vaccination and hygiene education; and

- raise the sector's profile in the political and macro-economic context of developing countries, through:

  . development of health and other socio-economic benefit assessment methodologies, and
  . increased public relation campaigns through the press and the media at large.

ix) If these efforts and activities are carried out in a cooperative way by ESAs and developing country governments alike, there is hope that sector progress - sustainable progress - in Latin America and the Caribbean will be substantially greater in the 1990s than it was during the Decade.

I. EVALUATION

1.1 INTRODUCTION

1.1.1 The Decade

A Special United Nations Conference on Water, held in Mar del Plata, Argentina in 1977, recommended that the period 1981-1990 be designated as the International Drinking Water Supply and Sanitation Decade (the Decade). The purpose of the Decade was "to provide all people with water of safe quality in adequate quantity and basic sanitary facilities by 1990, if possible, according priority to the poor and less privileged." Though it was a noble objective, given the relatively short span of time and limited resources, the magnitude of its task was formidable and largely underestimated. Nevertheless, the availability of safe drinking water and a hygienic living environment remains an essential element in the drive to improve people's health, overall conditions of life and, eventually, the productivity and well-being of societies.

1.1.2 The Evaluation

In keeping with the collective commitment of the Latin American and Caribbean Member countries, the Panamerican Health Organization (PAHO) is evaluating the progress of the Decade

in the LAC Region and will hold a Regional Conference on Water Supply and Sanitation, entitled "Evaluation of the International Drinking Water Supply and Sanitation Decade and Projections Toward the year 2000", in San Juan, Puerto Rico, from 4 to 6 September 1990, prior to the Congress of the Inter-American Association of Sanitary Engineering and Environmental Sciences (AIDIS). The purpose and objective of the evaluation is:

a) Analyzing the current situation of the water supply and sanitation sector vis-à-vis that of 1980 and the goals established by the respective countries for the IDWSSD.

b) Encouraging sector institutions and the countries in general to use the progress achieved so far, as a basis for planning the development of the sector in the years following the Decade and to motivate the countries to renew its political support.

c) Encouraging agencies that provide external support (multilaterals, bilaterals, non-governmentals) to review their support programs.

This, one of several reports to be presented in Puerto Rico, is a report of the Collaborative Council of External Support Agencies (see para.6, below). It portrays the status of the Decade from a point of view of external support agencies. It also points out the sector issues and future priorities for the attention of ESAs. Furthermore, it raises options for future activities to accelerate progress towards service coverage of water supply, sanitation and waste disposal in LAC countries.

1.1.3 Although solid waste management was not included among the original Decade targets, it has become a major issue in the course of the eighties, Hence, for the purpose of this report, the term Water Supply and Sanitation (WSS) will be used in a broader sense, including also solid waste disposal and overall sanitary measures, particularly in the urban context, where the protection of water resources is at a high risk.

1.1.4 The External Support Community

According to the Country External Support Information (CESI) system at the World Health Organization (WHO), Geneva - an electronic worldwide project data information system - 31 ESAs have reported supporting LAC countries during the Decade. They include 13 bilaterals, eight multilaterals and ten non-government organizations (NGO) - Annex 1. This list is not exhaustive, at least with regard to NGOs. The largest single funding agencies for the sector are the World Bank and the Interamerican Development Bank (IDB). Especially active among the bilaterals are the Canadian International Development Agency (CIDA); Germany through the German Agency for Technical Cooperation (GTZ), and the Kreditanstalt für Wiederaufbau (KfW); and the United States Agency for International Development (USAID).

1.1.5 PAHO has been a pioneer in developing the WSS sector in the LAC Region. For more than forty years, PAHO has been one of the principal support agencies of the sector, providing financing and technical assistance through sanitary engineers and other sector

experts throughout the LAC Region, concentrating on such areas as institutional, human resources and technology development. PAHO also has a long history of working in close association with two major financing institutions, the World Bank and IDB.
Overall, WHO's contributions to the Decade also include such ESA coordination mechanisms as the Country External Support Information (CESI) system - a worldwide electronic project information exchange network -; the International Drinking Water Supply and Sanitation Decade Directory - a catalogue of ESAs and Consultants; country-by-country Decade progress monitoring; hosting the Secretariat for the UN Steering Committee and, since 1988, also the Secretariat of the Collaborative Council.

1.1.6 The Collaborative Council of External Support Agencies

The Decade has been a success, inasmuch as it has raised global awareness of the importance of water supply and sanitation (WSS), redirected the sector's priorities from sophisticated to simple and adapted technologies, as well as from mainly hardware (pumps and pipes) to a more balanced approach, giving more attention to social aspects (software), i.e. community engagement and hygiene education. To some extent, The Decade focus also increased the flow of funds to the sector. However, the service level increase worldwide has just about kept pace with the overall population growth. About one billion people in developing countries still have no access to safe drinking water, and 1.7 billion lack access to basic sanitary facilities. For the LAC Region, these figures are estimated at 106 million and 156 million, respectively. This represents a considerable shortfall in relation to the 100% original Decade target.

1.1.7 Realizing that financial resources for the WSS sector are limited, the external support community has identified insufficient coordination among ESAs, between ESAs and developing country authorities and between different sector agencies in developing countries, as one of the chief hindrances to sector advancement. Hence, donor cooperation, common development strategies and streamlining of sector activities would significantly increase the effectiveness of sector investments.

1.1.8 At the initiative of WHO and the German Federal Ministry for Economic Cooperation (BMZ), a European Donor Conference was held in Königswinter, near Bonn, Germany in October 1984. This event, at which also representatives from the World Bank, UNICEF, UNDP, CIDA and USAID participated, launched an innovative effort by ESAs to improve their collaboration at country, regional and global levels. Since 1985, thirteen so-called Decade Consultative Meetings (DCM)[1/] have taken place worldwide. A DCM is a donor conference for the WSS sector, organized by a developing country, at which

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[1/] DCM in Asia: Fiji for South Pacific Island countries, Indonesia, Nepal, Philippines, Thailand;
Africa: Lesotho, Niger, Portugal for Lusophone African countries, and Zambia.

national sector authorities present donors with their sector development strategies and priorities. Among the 13 DCMs, four were held in the LAC Region, in Bolivia; Guatemala for Central America and Panama; Peru; and St. Kitts for Caribbean countries. Several regional and global meetings of ESAs and representatives of developing countries in close collaboration with the respective Regional Development Banks have also taken place, all with the objective of improving sector cooperation.

1.1.9 The effort culminated in a Global Consultation for Water Supply and Sanitation in The Hague in November 1988, co-sponsored by WHO and the Dutch Government, when the Collaborative Council (CC) of ESAs was established. Annex 2 displays an organizational structure of the CC. In setting up the Council, the Hague conference endorsed the concept of a Framework for Global Cooperation Beyond the Decade, with the overall objective "to accelerate the provision of water supply and sanitation services to all, with emphasis on the unserved rural and periurban poor, by using a coordinated programme approach". The CC is an informal mechanism of ESA coordination and is open to any donor and financing institution that wants to join. The CC has a smaller and more permanent body, the 1990 Committee, which is composed of a group of about 20 key representatives of multi and bilateral ESAs, NGOs and developing countries and deals mostly with day-to-day issues. The CC discusses and seeks to harmonize sector development policies among bilaterals and between them and multilateral agencies, addressing a variety of issues, ranging from technology to finance and from research to information exchange.

1.1.10 Sponsored by UNDP and under the auspices of the Collaborative Council, a Global Consultation will be held in New Delhi, India, in September 1990. It is expected that delegates from about 100 developing countries and representatives of some 50 ESAs will participate. One of the key purposes of this meeting will be to identify and establish WSS sector development priorities, strategies and approaches for the 1990s, on the basis of reported regional or sub-regional needs and priorities.

1.2 Financing and Investments

1.2.1 Global Figures

It is estimated that in developing countries worldwide about US$ 64 billion[1/] was invested in the sector from 1981 to 1985. Of that amount an estimated 25%, i.e. US$ 16 billion came from ESAs. During that period ESA investments increased by about 9% per year. This increase has levelled off to about 3% in the 1986-1990 period, leading to total estimated ESA capital investments of US$ 26.6 billion by 1988 and US$ 34.6 billion at the end of the Decade. (Annex 3 provides more details). Of all external funding to the sector, the joint share of the

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[1/] all US$ figures in 1981 terms, unless stated otherwise

World Bank and regional development banks is estimated at 60% to 65%. The World Bank Group's accumulated lending to the sector up to June 30, 1989, amounted to US$ 9.8 billion, or about 4.4% of its total lending operations, since it started lending to the sector in the early sixties.

1.2.2 LAC Region

Total ESA sector funding 1981-1985 for LAC countries was about US$ 3 billion, about 15% of total project costs. By the end of 1989 the ESA contribution for the nine years of the Decade was estimated at US$ 5.8 billion, representing about 20% of inputs to the sector, with the remainder being funded by national resources. This indicates that the LAC economic crisis - mostly related to foreign debt - which reached a peak in 1987, induced governments to reduce their contributions to the WSS sector; a situation found to be similar in other social sectors.

1.2.3 The World Bank Group's cumulative sector lending to LAC countries up to June 30, 1989, amounted to almost US$ 3 billion of which US$ 2.1 billion (current terms), were committed between 1980 and 1989, or roughly US$ 1.9 billion in the first nine years of the Decade, 1981-1989. This corresponds to about 5.3% of the World Bank's overall operations in the Region, indicating an almost 1% higher sector lending ratio in LAC than in other Regions. IDB's cumulative sector operations in the 1960-89 period was US$ 3.7 billion. IDB sector investments from 1981-1989 period was US$ 2.4 billion current terms. This would bring total lending of the two financing institutions to almost two thirds of all ESA sector funding during the Decade. The balance consists mostly of bilateral funding which shows a steady increase in absolute terms throughout the Decade, a trend reflected in CESI data. Annex 4(a) provides trends and other details of the World Bank Group's sector lendings worldwide and to the LAC Region; Annex 4(b) shows IDB cumulative sector lending from 1960 to 1990.

1.2.4 The WSS Sector in the National Economic Development Context

Overall, development funding data from ESAs to LAC countries are not available at this time. However, World Bank statistics clearly indicate that when in 1987 the LAC Region's level of foreign debt reached a high for the Decade of US$ 445.4 billion (versus US$ 242.7 billion in 1980 and US$ 434.1 billion in 1989), investments in the so-called directly productive sectors (agriculture; development finance/banking; industry) were also at their highest (US$ 3.4 billion), whereas WSS stood at a low point with project commitments of only US$ 64 million. (Annex 5 - World Bank Lending to LAC Region by Sector, 1980-89). This trend is likely to be found in other ESA funding too. It leads to the conclusion that the WSS sector (i) needs to become more effective in its use of scarce resources; and (ii) must build up its image, as being a vital long-term contributor to economic growth and stability by demonstrating its health and other socio-productive benefits.

1.2.5 Technical Assistance

Precise data on Technical Assistance (TA) financing in the WSS sector are not available. Experience indicates, however, that funding for TA projects is usually below 1% of total investments. While TA components have been included in most investment projects, at least in the later years of the Decade, they are often not consistent with the real long-term needs of the sector and address merely the requirements of a particular investment project. Also, they are often conceived to end at completion of an investment project, i.e. after three to five years, a period which invariably is too short to make a major impact in the sector's performance.

1.2.6 Technologies

Sector operations by the two major lending institutions in LAC, the World Bank and IDB, concentrated mostly on urban water supply and sewerage. This means relatively high capital (and per capita) investments, requiring a sophisticated institutional framework for operation and maintenance (O and M). Such systems generate (i) high O and M costs that need to be met from local resources; and (ii) an external debt service, further constraining an already weak economy.

1.2.7 Bilateral assistance is usually more rural, urban fringe and "appropriate technology" oriented than that of development banks[1/], thus, creating less auxiliary charges for governments and being better manageable for institutions and beneficiaries. Nevertheless, bilateral assistance can in the long run prove to be costly too: it has traditionally lacked coordination, thereby often creating a diversity of equipment and providing technical assistance through a variety of incompatible approaches.

1.3 Targets and Achievements

1.3.1 The following WSS service coverage statistics need to be qualified, inasmuch as (i) they are based on often incomplete information collected by developing countries; and (ii) they usually do not take into account broken-down or irregularly functioning systems. With that in mind, the available data provides an overview of the world's and LAC's WSS service coverage situation and how it compares with the targets set at the beginning of the Decade.

[1/] except for the UNDP/World Bank Programme for WSS low-cost technologies in developing countries.

1.3.2 Decade Objectives

Worldwide WSS service coverage has increased only marginally during the Decade. In fact, population growth generally exceeded increases in water and sanitation coverage. Thus, today more people are without adequate water and sanitation services than at the beginning of the Decade. The original widely perceived objective[1/] of supplying all people with safe drinking water and sanitary facilities by 1990 is, thus, far from being met. The task which has proved to be a mammoth endeavor, was largely underestimated at the beginning of the Decade for three reasons:

i) to provide all people with safe WSS services, implies in many cases significant institutional changes and, more importantly, departure from hundreds of years of tradition. These drastic institutional and social behavioral changes cannot be brought about in ten years;

ii) the level of worldwide population growth in the 1980s was underestimated; and

iii) the increase in funding to the sector fell far short of projected levels, mainly due to unexpected recessions or slow-growing economies throughout the 1980s in both developing and industrialized countries. It is, however, fair to say that even with additional financing available, many countries would have been unable to absorb it, either institutionally or economically.

1.3.3 Global Statistics

i) Urban:

- From 1980 to 1989, about 275 million additional urban dwellers in developing countries have gained access to water supply, representing only a marginal service coverage increase from about 76% to 79%. In the same period the urban population worldwide grew by more than 40%; in Africa it grew by close to 70%, due to high birth rates and immigration to cities.

- In the 1980-1989 period, about 320 million additional urban inhabitants were provided with appropriate sanitation facilities, raising the service coverage rate from 50% to 65%.

1/ LAC countries subsequently adjusted their targets individually to more realistic goals which however, in most cases, still proved too ambitious.

ii) Rural:

- About 460 million more rural people have received safe water supply. Overall rural water supply coverage has risen from 31% to 47% from 1980-1989.

- Only 155 million additional rural dwellers have gained access to safe sanitation facilities, mostly latrines, corresponding to a slight service coverage increase from 14% to 21% since the beginning of the Decade.

Annexes 6 a), b), c) and d) provide tables of global and regional WSS service coverage figures.

1.3.4 LAC Statistics[1/]

In the LAC Region, overall WSS service coverage rates are higher than the global average, but the pace of increase during the Decade has been about the same.

	1980 Population	% Coverage	1989 Population	% Coverage	1990 Population	(projected) % Coverage
i) Urban						
Water Supply	237.7	83	317.0	84	326.2	90
Sanitation	236.7	63	317.0	80	326.2	81
ii) Rural						
Water Supply	125.0	41	125.1	54	123.9	56
Sanitation	125.0	13	125.1	23	123.9	24
Total Population	361.7		442.1		450.1	

1.3.5 In LAC countries the urban population has increased by about 35% during the Decade. Today more than 70% of the Continent's population live in cities. This ratio is expected to reach 80% by the turn of the Century. At present one third of the urban population is concentrated in 15 megacities of more than 2 million inhabitants. A large proportion of urban dwellers live in slums or periurban areas, sometimes under extreme poverty conditions. Though no reliable estimates are possible - mainly because the total population of large metropolis, like Mexico City and Sao Paulo, can only be guessed at - up to one third of the urban dwellers may be poor. In Lima (pop. 6-8 million), for

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[1/] These figures are based on statical input form LAC countries as available in early July 1990.

example, possibly more than half of the population live on the outskirts of the city, in unplanned clusters of shacks, without basic infrastructure of any kind.

1.3.6 Service coverage for 1988 reported by LAC countries ranged for water supply from 96% in Brazil to 33% in Paraguay and for sanitation from 99% in Trinidad and Tobago to 34% in Bolivia. In many cases, however, the data received is insufficient to draw reliable conclusions. Annex 7 provides statistical information obtained from countries. Water quality, especially in rural areas and in periurban situations not served by public supplies, is generally poor, contributing to high morbidity and mortality rates. It is estimated that up to 80% of all diseases in the LAC Region are related to poor WSS services and hygiene. Infant mortality (up to one year of age) on average in the LAC Region in 1987 was about 60 deaths per 1000 live births. In the highlands of Bolivia and Peru it may in some areas reach up to five times these levels.

1.3.7 Socio-economic Benefits

Service coverage rates are measurable in quantifiable targets or achievements. However, they do not express how or to what extent they affect the beneficiaries. Such benefits, like better health, improved living conditions and general well-being, are difficult to quantify and, therefore, usually not measured. In fact, there exists as of yet no clear methodology to account for them. These socio-economic changes depend on a number of closely linked factors, in addition to the availability of safe drinking water and sanitary waste and excreta disposal systems. Nutrition, education, housing, environment, employment, are just a few elements also influencing the health and livelihood of a given group of people. Their impact might vary from one cultural background to another. Hence, it is virtually impossible, at this stage, to assess the Decade's health or other socio-economic impact with any accuracy. However, recent studies carried out by PAHO confirm the link between safe WSS and the reduction of diarrhoeal diseases, especially if water supply and excreta disposal are accompanied by adequate community and personal hygiene education.

1.3.8 Other Benefits

The largest single benefit of the Decade may be the awakened awareness. Government officials and the people at large know much more today than they did nine years ago about the links between safe drinking water and a healthier hygienic living environment. This momentum is a crucial first step to build on in the nineties, when the rate of increase of sustainable WSS service coverage must accelerate substantially, not only to out-pace population growth, but, eventually, to satisfy these vital basic needs for all people in the world.

1.3.9 Further benefits or achievements of the Decade include (i) a widespread consensus on key project implementation approaches among the external support community, as well as developing country sector agencies, i.e. methodologies for project planning and evaluation; technologies for cost recovery and containment; methods of community

organization, recognizing the role of women and teachers; and (ii) a general agreement among ESAs and between ESAs and developing countries to improve cooperation and collaboration in the sector (see para.6, above - Collaborative Council of ESAs).

II. THE SECTOR'S PROFILE IN THE MACRO-ECONOMIC CONTEXT

2.1 The Sector in the Light of the Debt Crisis

2.1.1 Global

The Total External Debt (EDT) of all developing countries has more than doubled between 1980 and 1989, from US$ 572.2 billion to an estimated US$ 1,165.5 billion. Today it represents almost 200% of developing countries combined annual export earnings, or about 44% of their aggregate Gross National Product (GNP), compared to about 132% and 28% respectively, in 1980. The average Debt Service Ratio (TDS) is today about 27.5% versus 21.4% in 1980. The TDS is the amount of total interest payments of a country, compared with its total foreign exchange earnings from exports of goods and services.

2.1.2 In the LAC Region Total External Debt in 1989 is estimated to be almost three times as high (297%) as earnings from goods and services; it corresponds to more than half of the LAC nations' combined GNP. The average TDS is almost 40%. Annex 8 provides details and trends of external debt worldwide and in LAC countries. While these indicators were already high at the beginning of the Decade - 194.5%, 34.8% and 36.9% respectively- they have now in many countries reached such levels, that an economic policy and social adjustment process is required. This means on the one hand policy modifications, transfer and concentration of resources to the productive sectors to spur economic growth and export earnings; and on the other, simultaneous programmes to mitigate the poverty impacts of reduced social services, emanating from economic adjustments. Countries particularly affected are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Peru, Uruguay and Venezuela which have the highest external debts compared to GNP. Adapted and sustainable WSS projects may constitute important elements in social adjustment programmes.

2.2 Capital Flows and Resource Mobilization

2.2.1 The WSS Sector's Limited Growth Potential

Economic growth is definitely a priority for most of the LAC countries. It is, thus, unlikely that the flow of national resources to the WSS sector will, in relative terms, substantially increase in the foreseeable future. Sector allocations in national budgets typically range from 3% to 5% of total capital expenditures, figures similar to those of total assistance allocated by most ESAs to the WSS sector.

2.2.2 Total sector allocations by ESAs in LAC from 1981-1989 amounted to about US$ 5.8 billion (see para. 12 above), representing about 20% of ESA and national investments combined. Combined ESA and national capital investments in the sector over the nine years 1981-1989, amounted to about US$ 29 billion, or US$ 3.2 billion per year. This corresponds to less than one half of a percent of the projected combined LAC GNP in 1989.

2.2.3 Based on statistical service coverage data shown in para. 21, above, the total investment cost that would be required to meet 100% service coverage as a hypothetical target, at 1990 population levels, might be as high as US$ 13.6 billion, a figure corresponding to about 1.6% of the estimated 1989 LAC GNP, about four times as high as average annual investments in the past nine years. This does not include the enormous cost of properly operating and maintaining the new systems. Annex 9 displays the calculation of funds required for the hypothetical case to achieve with realistic per capita investment costs 100% service coverage at 1990 population levels.

2.2.4 Technology Choices and O and M

This demonstrates that conventional approaches must be reconsidered and revised, so as to give way to new, innovative technologies and project implementation methods. Sector policies must be reoriented by both developing country authorities, and by ESAs: existing WSS infrastructure and installations should be more efficiently utilized; where feasible, options for rehabilitation should have preference over new investments; systematic, well-staffed O and M programmes must be integrated in sector development schemes. As a result of these measures, capital costs and foreign exchange expenditures, as well as recurrent costs, could be significantly reduced. In the design of water supply and sanitation systems, there is a balance between capital costs and maintenance costs. The right choice will depend on the opportunity cost of capital adopted in financial analysis. Lower initial capital costs often involve high maintenance costs. This might be a danger with the so-called "low-cost" technology approaches.

2.3 The Sector's Visibility

2.3.1 Political Profile

Despite almost ten years of Decade promotion and Public Relations (PR), the WSS sector has still a relatively low political profile. It is not recognized as a vital contributor to a country's macro-economic development scene, for two major reasons:

i) the sector's benefits are not readily visible; there is as yet no cost-benefit analysis method proving the sector's long-term credit-worthiness in terms of improved social well-being and productivity; and

ii) the sector's institutions are generally weak. They are to a large extent financially not viable, requiring subsidies and providing unreliable services. With a few exceptions, they are commercially not credit-worthy.

It is therefore not surprising that in every tight monetary situation, water supply and sanitation is, with other social sectors, among the first ones to receive reduced budget allocations.

2.3.2 Notable institutional exceptions include at least five WSS companies in the LAC Region: Companhia de Saneamento de Minas Gerais (COPASA), Brazil; Sociedad de Acueductos y Alcantarillados del Valle del Cauca (ACUAVALLE) and Empresas Públicas de Medellin (EPM), both in Colombia; Empresa Metropolitana de Obras Sanitarias de Santiago de Chile (EMOS), Chile; and Servicios de Agua y Drenaje de Monterrey (CAD), Mexico. These utilities operate with a high degree of autonomy and, as financially viable institutions, have access to commercial money markets. They are models to be emulated in the LAC Region.

2.3.3 Community Awareness

While sector promotion and PR efforts have been mainly directed at WSS agencies of developing countries and at ESAs, much needs to be done at the community level. Community participation throughout Latin America is generally weak. Among the more successful ESAs in developing community managed rural WSS schemes in the LAC Region, are some Canadian, Dutch and Swiss NGOs. They help villagers implement self-sustained projects in the highlands of Peru, Bolivia and Ecuador. By and large, however, ESA approaches for rural WSS projects are still too hardware intensive. Awareness campaigns, including hygiene education, are normally carried out during project implementation, but they finish with physical completion of a project, trusting - mostly in vain - that the community, state or central government, will take over the long-term responsibilities of operating and maintaining the systems.

2.3.4 The concept of "community awareness" goes, however, beyond the beneficiaries of a given rural project. The WSS consumer at large, rural and urban, has to be informed about the potential benefits of WSS services. He must also know his obligations via-à-vis these services to help ensure their reliability; i.e. avoid wastage and prevent pollution, protect the environment through hygienic household practices and social behavior - and he should also know that these services have a cost which he must share. To this end, the media can play a more important role than it has done in the past.

III. SECTOR ISSUES AND STRATEGIES FOR THE 1990s AND BEYOND

3.1 Issues

i) Rapid Urbanization

3.1.1 Nowhere else in the world is the level of urbanization as high at it is in the LAC Region. About 70% to 75% of the population is estimated to be living in an urban environment. This proportion is expected to reach maybe 80% by the year 2000. As many as one third of these people may live in households with incomes below the poverty line.

3.1.2 The Urban Poor

It is not easy to estimate the number of poor people in LAC cities, since few reliable poverty studies have been carried out in the past 20 years. One of them is based on data from 1970, collected by Oscar Altimir. The findings of this study are supported by a 1981 World Bank survey. They conclude that about 40% of the population in Latin America is poor in a sense that they are incapable of satisfying their basic needs for food, shelter, clothing, health and education. Of LAC's urban population they averaged about 25%, whereas about half of them were considered to be destitute, meaning the inability to even buy a minimum basket of food. In Honduras the urban destitute were estimated at 45%, in Peru and Brazil at 25% of total urban population. See Annex 10 for details.

3.1.3 Although this study dates back 20 years, it is unlikely that the situation has improved since then. If anything, it has probably worsened, since the ratios of urban income distribution were steadily changing in the 70's and 80's to the detriment of the poor. Since in most of the LAC countries, the economic adjustment process if far from complete, income distribution will probably become more regressive in the 1990s.

3.1.4 Moreover, it appears that the poor, the urban poor in particular, have benefitted least from the Decade in the LAC Region. Statistics show only marginal increases in service coverage, in both urban water supply and urban sanitation, between 1980 and 1989 (water: 83% to 84%; sanitation: 63% to 80%). These increases are attributable to service expansion of WSS companies which provide new services more likely to potentially paying customers than the poor. Instead, low-income groups depend largely on unsafe water from polluted ponds and rivers or on water vendors, at prices up to 35 times the cost of water from the distribution system (Honduras). At this cost, about US$5 to US$7 per month per family, adequate water supply systems could be installed, operated and maintained.

3.1.5 Service Extension to the Urban Poor

As urban fringe areas are likely to grow further in the coming years, the issue of providing the urban poor with basic services must be addressed as a priority in the nineties. The bulk of the cost for extending WSS services to urban fringe areas has to be met from tariffs. Since in most cases existing tariffs are inadequate to meet even the utilities' operating costs, there is little incentive to extend the service to the poor. Experience shows that on average, about 85% of water is consumed by 15% of a city's population. Many of these large consumers do not even pay the marginal cost[1/] of water. Some of them, government departments, schools, hospitals, often do not pay at all. That means that a relatively small tariff increase, or an adjustment to cover the marginal cost of water, for these usually better-off consumers (industries, upper income level population) and tariff enforcement for those who do not pay, could provide additional funding to help extend delivery systems to the urban poor and destitute.

3.1.6 Decisions to increase tariffs are usually politically sensitive and unpopular. Often a shift or adjustment in the tariff structure would be sufficient to increase the WSS company's income, thus avoiding an across-the-board price increase. Development financing institutions, for example, the World Bank and the IDB, should more often use their influence with borrowers to impose and enforce such lending conditions and see to it that incremental proceeds are used for service extension to the poor.

3.1.7 Effective Demand

Planning according to effective demand is another requirement, if urban coverage - particularly sustainable services to the poor - is to increase significantly in the 1990s. This means that the potential water consumption of the population to be served needs to be analyzed in terms of their willingness to pay and of technologies commensurate with available resources and the socio-economic conditions of the future beneficiaries. By adopting the concept of effective demand, from project preparation through design and construction, WSS sector planners in developing countries and ESAs could help avoid over-designed supply and delivery schemes and thereby contribute significantly to improved cost recovery and O and M, thus, to the long-term sustainability of systems.

3.1.8 Water supply projects, particularly in urban areas, need to be linked also to solid and liquid waste disposal and drainage measures, eventually leading to a healthier urban sanitary environment and to better protected water resources.

[1/] The "marginal cost" is the cost to produce an incremental m^3 of water.

ii) Institutional Weaknesses and Development

3.1.9 The sector's institutional needs are not unique to the LAC Region. To quote from a recent World Bank report: "institutional weakness is one of the most important obstacles that stands in the way of an efficient provision of water and sewerage services." Institutional weaknesses affect not only large urban utility companies, but also obstruct reliable service provision at the community level.

3.1.10 The absence of reliable water supply and sanitation services has also a socio-economic cost in terms of deteriorating health conditions and reduced human productivity. This impact is felt most in urban areas, where the population density makes city dwellers more vulnerable to infectious diseases, due to poor overall urban sanitation.

3.1.11 Urban

Water supply and sanitation enterprises in the LAC Region face enormous external constraints, mostly linked to the economic environment of the country in which they operate:

- rapid and unplanned population growth;
- politically appointed management;
- fixed, government controlled tariffs and high inflation;
- pressure to expand services to low-income groups, resulting from fast urban growth;
- limited access to external funding.

These are practically out of control of the sector institutions.

3.1.12 Internal problems compound the difficulty to provide efficient and reliable services:

- excessively high unaccounted-for water, linked to inefficient billing and collecting systems, as well as unreliable metering and leakages;
- high-cost systems designs and inappropriate O and M programmes, leading to unsustainable investments;

- inadequately trained manpower;
- uncompetitive salaries and high turn-over of technical and managerial staff, resulting in low employee productivity; and
- uncoordinated, ad-hoc operations, instead of long-term planning of sector development and manpower needs.

These are some of the major institutional weaknesses affecting a WSS enterprise's daily operations. Integrated, long-term institutional development programmes, especially through committed financial management, would not only alleviate these deficiencies, but would also help mitigate the impact of the external factors.

3.1.13 Some of the LAC sector companies, notably those mentioned in para.34, above, have been able to develop distinctive organizational structures which have earned them high esteem in the communities they serve. Key policies of these structures include:

- consumer-oriented operations, striving as a priority to provide prompt, courteous and reliable service, thus building trust among their clients and increased willingness to pay for the services;

- sound personnel management, providing employees with job security, training activities, competitive salaries and other incentive schemes, resulting in increased levels of productivity;

- streamlining and strengthening financial and technical operations, thereby achieving higher rates of cost recovery and reducing unaccounted-for water.

Through these policy approaches some of these companies are able, at least partly, to offset the impact of government imposed tariffs. Revenues meet O and M requirements and, in some cases, even contribute to their investments. However, even these companies are, to some extent, vulnerable to changes in the political environment. They have to further strengthen their institutions from within, so as to detach their credit-worthiness from political decisions on tariffs, taxes and state budgets.

3.1.14 Rural

In the design of rural WSS projects, institutional aspects are often neglected. They are left to the government to deal with through a centralized or regional organization which usually does not have sufficient capacity to take on the labor-intensive, long-term responsibility to work closely with the beneficiaries of a community. The result is that new systems are inappropriately designed, lack regular maintenance and soon become non-functioning. As a consequence, the beneficiaries are disappointed and lose confidence in future external attempts to install WSS services.

3.1.15 An efficient institutional framework in rural areas will help to achieve self-sufficiency and sustainability of the schemes, based on responsible community management. Any project design should, therefore, include an assessment of the institutional requirements and take full account of the community's expressed needs and commitments to the management of the system.

3.1.16 Institutional Development Concepts

Institutional development has no "blue print" solutions. Whether in the urban or rural context, any institutional development project design needs to be adapted to prevailing situations, and expected performance criteria. This may include a wide range of factors, from the

socio-cultural background of the community to be served, to the macro-economic environment in which a WSS enterprise operates. However, there are a number of "check-points", or essential steps, that should be considered in the design of institutional development projects:

- clear definition of sector issues and institutional deficiencies;
- integration of identified issues into a comprehensive institutional strengthening or development programme, addressing the entire institution;
- objectives and strategies based on deep-rooted constraints, rather than on peripheral symptomatic issues;
- full involvement and engagement in the project design process of project participants and/or beneficiaries (staff and management of a company and future consumers of community-based schemes);
- design of a comprehensive counterpart structure, identifying individuals within the institution to work closely with external advisors; and
- a sequential implementation plan with required inputs and expected outputs.

3.1.17 Institutional development projects may require changes in established structures and social behavior. They should, therefore, be designed as long-term endeavors, if they are to be successful. "Long-term" may range from 8 to 15 years or even more, depending on individual circumstances. The average span of a traditional investment project execution, 3 to 6 years, is most likely not enough. It is important that ESAs, as well as national WSS agencies which plan to embark on institutional development programmes, are aware of the long-term commitments imposed by them. The structure of such programmes should be kept flexible enough to allow for adjustments in the course of implementation.

iii) Environmental Degradation

3.1.18 In this paper, environmental degradation is looked at particularly in an urban context. Rapid urbanization, combined with general population growth and increasing industrialization, affects developing countries in general, and the LAC Region in particular. By the year 2000 about half of the world's population will be urban, in the LAC Region the proportion will reach 80%. These concentrations generate even larger amounts of liquid and solid wastes, strangling the capacity of environmental management systems. Yet, like a vicious circle, larger cities attract more industry and more rural immigrants in search of infrastructure and labor, posing an ever growing risk for the environment - and for the urban dwellers.

While not even half of the urban inhabitants in developing countries benefit from sewerage and refuse collection systems, the vast majority of the unserved are poor.

3.1.19 Health problems emanating from unsanitary waste disposal systems affect mostly the poor, who may account for up to 50% of large urban agglomerations. The economic impact on this segment of the population may be measured by the loss of productivity due to high morbidity and mortality rates, but there are no adequate indicators to portray the cost of human suffering, as a reflection of the low quality of life.

3.1.20 Other environmental hazards arise from the inappropriate disposal of solid and liquid wastes (it is estimated that globally less than 5% of the municipal wastes collected in developing countries are disposed of adequately). They pollute already scarce water resources and may cause irreparable damage to groundwater deposits. In addition, large urban centers' growing water needs deplete these water resources faster than they are renewed, thus forcing municipalities and WSS companies to resort to more distant and costlier water sources.

3.1.21 WSS, a Component of the Environment

To stem this trend, ESAs in designing projects should look in the future at the WSS sector as an integral part of the environment. Accordingly, and contrary to past practices, sanitation measures, including solid and liquid waste disposal, are not to be regarded merely as an "after-thought" to water supply projects, but should henceforth become an integrated component of a holistic approach to WSS sector development. In some cases a phased, step-wise implementation of usually expensive wastewater treatment, might be economically better justified, than immediate investments in full treatment facilities.

3.1.22 The Urban Poor - A Priority

The large number of urban and periurban poor in LAC countries is a critical mass for urban development. The alleviation of their plight will become a growing challenge for ESAs and developing countries alike in the 1990s. Future urban WSS sector work should, therefore, address basic sanitary needs of the urban low-income groups, including collection of garbage and provision of low-cost excreta disposal and water supply systems.

iv. External Debt and Funding of the Sector

3.1.23 The WSS Sector's Low Profile

The external debt burden of LAC national economies makes funding of the WSS sector even more difficult than in other countries of the world. Resource mobilization for water supply and sanitation is in competition with the directly productive sectors, primarily agriculture and industry, or those infrastructure sectors that produce more quantifiable benefits, like transportation and communications. The WSS sector often appears in a position of relative

isolation from the national development scenario. WSS is usually classified among those sectors which make no tangible contribution to economic growth.

3.1.24 Assessment of Benefits

In the nineties, ESAs may consider it a special endeavor to rid the sector of its charity stigma and to elevate its profile to the level it deserves, as an essential contributor to the long-term social well-being and sustained productivity of societies at large. Tools to prove this notion are not readily available, but extended monitoring over time, project-by-project, will eventually allow measurable indicators to develop.

3.1.25 Rehabilitation Versus New Investments

ESAs may also look at more cost-effective methods to accelerate service coverage, so as to reduce capital costs and scarce foreign exchange resources. On behalf of the Collaborative Council, the Asian Development Bank (ADB) is currently preparing a paper on the comparative "Advantages of Rehabilitation versus New Investments" in the WSS sector. The study will be based on actual ADB field experience in Asia. It will develop, however, indicators and assessment criteria that will be of general use, addressing such considerations as deferment of new investments; savings in capital costs; reduction in foreign exchange expenditures; reduction in marginal cost of water, resulting in improved cost recovery; and improved management of assets due to simpler O and M requirements. Case studies will also compare financial rates of return between rehabilitation and new investments. A draft report is expected to be available at the end of August 1990.

3.2 Future Strategies and Orientations

3.2.1 The resource base for development of WSS services in the 1990s in LAC countries is not likely to grow in relative terms. Water resources, will tend to become scarce and more polluted. Urban growth will continue to the detriment of overall urban sanitation. There will be more urban poverty and higher health hazards.

3.2.2 To deal effectively with these constraints, ESAs, as well as developing country governments of the LAC Region , will have to streamline their inputs and address the key issues, in a concerted fashion and with coordinated efforts. Concentration on the concept of effective demand for future planning on construction of WSS schemes will also help optimize the use of resources, thereby improving recovery of costs and sustainability of systems. Only with a significantly higher yield factor of available resources, will it be possible to accelerate the increase in service coverage and, at the same time, control and limit environmental degradation. These are the major areas where priority attention will be needed in the 1990s and beyond:

i) The Search for an Urban Model

3.2.3 a) Institutional Adjustments will be needed in WSS and sanitation companies. These changes ought to address sector issues in an integrated way, with emphasis on financial management, and must be implemented with a long-term perspective, reaching far beyond the physical execution of individual projects. These measures should also include appropriate management training, setting the pillar for priority-oriented and dynamic sector planning.

In providing assistance, ESAs may want to consider different options, among them the "twinning" method which has been initiated in the early 80's in Latin America by the World Bank. It means that a well-run WSS company of one LAC country (or industrialized country) provides technical assistance and advisory services to a less successful utility in another LAC country. This method has involved WSS institutions in a number of countries, including Argentina, Brazil, Colombia, France, Guatemala, Mexico, Spain. Model organization for twinning operations could include those mentioned in para. 34, above, i.e. COPASA or Minas Gerais, Brazil; ACUAVALLE of Valle de Cauca and E.P.M. of Medellin, Colombia; EMOS of Santiago, Chile; and C.A.D. of Monterrey, Mexico.

b) Sustainability. Systems providing sustainable services require an effective demand planning and design concept, i.e. an integrated analytical approach of willingness to pay, appropriate technologies, structured O and M schemes, and adequate cost-recovery mechanisms. ESAs should observe strict sustainability criteria in project designs and support the necessary research.

c) The urban poor may soon become an urban majority. Already today they constitute a potential force for development. In the course of economic adjustment in the highly indebted LAC countries, their plight has drastically worsened. Providing them with vital WSS and garbage collection systems would help mitigate the social impact of economic changes, improving their life-base, health, employability and productivity.

An option to be pursued by ESAs and developing country authorities is the search for alternative water supply distribution systems for periurban areas through a decentralized institutional framework, entirely or partly managed by the local community.

d) Solid and liquid waste disposal and urban sanitation measures are an urgent priority to stem the continuous degradation of the environment in terms of living conditions and water resources pollution. Untreated sewage is traditionally discharged into the environment and often used for food crop irrigation in most large Latin American cities. This practice poses significant health risks. They are compounded by the absence of solid waste and excreta disposal systems in crowded periurban areas. Studies have shown that in LAC countries, on average 60% of the population have intestinal parasites.

ii) Acceleration of Rural Coverage

3.2.4 In the 1990s, project development approaches by ESAs should put emphasis on replicable and sustainable technologies and on community management. The latter concept involves the beneficiaries at all stages of project planning and implementation and is accompanied by long-range hygiene education and awareness campaigns.

3.2.5 The majority of households with incomes below the poverty line in Latin America are still found in rural areas (see Annex 10). Satisfying their basic needs, including WSS services, will not only help to improve their health and overall livelihood, but it might also be a factor in reducing migration to the cities.

iii) Protection of the Environment

3.2.6 a) With increasing pressure on water uses, water resources management in the 1990s will be essential to secure the long-run supply of drinking water. The use of scarce water resources for sewerage and agricultural irrigation may severely limit availability for other beneficial uses. Urban drinking water demand is challenged by pricing policies that fail to recover costs and the quality is deteriorating due to urban and agricultural wastes.

b) Water quality and resources pollution control is an integral part of water resources management. In most Latin American countries the concept of water quality has been associated with drinking water. Therefore, health ministries have traditionally been responsible for water quality control.

However, inadequate disposal of waste water, concentrated discharge of industrial waste, indiscriminate use of raw sewage for irrigation, flooding related to deficient garbage collection and street cleaning may also contaminate water resources. With the water resources pollution risk on the rise, several countries - Brazil, Colombia and Venezuela - have established environmental protection agencies. Mexico has created a special water pollution control agency. Peru has formed an inter-ministerial council to coordinate water pollution control activities. These and other examples may serve as models for ESAs in designing water resources management TA projects in the 1990s.

c) Urban Waste Management. Existing municipal solid waste management schemes in LAC countries typically serve only about 50% of the population, picking up about 60% to 70% of the refuse. The unserved live mostly in periurban, low-income areas, many of which constitute unplanned, unauthorized squatter settlements ("favelas" or shanty towns) and, therefore, are not eligible for municipal services. Also, collection in middle and high income areas appears more cost-efficient, as the people living there produce up to three quarters of all municipal refuse. Moreover, in some cities

garbage collection is linked to resource recovery. Since refuse from the poor has little recycling potential, municipalities have no incentive to service these areas.

Inadequate urban waste management results in urban pollution and imposes a cost on society in the form of productivity losses, poor health and environmental degradation. The impact covers a wide range of users of polluted resources, i.e. urban dwellers, industry and agriculture. Waste management/disposal is an urban sub-sector of growing importance. To demonstrate more clearly the degree of its priority for action in the 1990s - and to better estimate the economic rate of return of such actions - research is needed, comparing the magnitude of damages and benefits with the cost of providing these services. This is an area where development finance institutions could provide valuable research work and information.

To help design waste management projects, ESAs should consider the following components:

- Strategic solid waste plans, addressing the full range of solid waste services and management activities;

- Collection, including the selection of vehicles, based on type of solid waste, labor and other local conditions, as well as maintenance of the vehicles and staff training;

- Transfer and disposal of waste and resource recovery, requiring investments in non-polluting low-cost disposal facilities, such as sanitary landfills and composting;

- Hazardous waste management needs to be subjected to strict environmental controls and therefore kept out of the regular municipal waste system;

- A regulatory framework is required, establishing appropriate solid waste-related laws and ordinances and the corresponding enforcement mechanisms;

- Institutional arrangements must be adequate to carry out waste management operations. This might involve upgrading and strengthening existing institutions, as they have traditionally a low ranking in the administrative hierarchy;

- Financing, pricing and cost recovery are questions deserving special attention, particularly regarding the financing of the substantial recurrent costs;

- Land acquisition must be secured in environmentally safe sites; and

- Proper phasing of solid waste management improvements or new schemes. As a first step, a comprehensive waste management plan is needed, followed by appropriate measures to put an institutional framework in place.

Finally, ESAs might also look at models of private waste management schemes that have been operating in Latin America at various degrees of success, for example, in the cities of Buenos Aires, Argentina; and Rio de Janeiro and Sao Paulo, Brazil. The informal sector has traditionally also played an important role in waste management schemes, especially in garbage collection in poor areas and in recycling activities.

d) Waste Water Reuse

3.2.7 However, wastewater must then be treated and upgraded according to safe water reuse criteria so as to reduce health risks. The reuse of untreated domestic sewage for irrigation is commonplace in Latin America. The health risks are substantial, especially for farm workers and the population consuming agricultural goods from these areas. Examples of large-scale waste water reuse, sometimes operating with untreated sewage include:

- Santiago de Chile, where untreated sewage irrigates about 62,000 ha of agricultural land, including vegetables for raw consumption. This practice has been implicated in the high typhoid mortality rates in Santiago; Chile has lately taken measures to reduce the incidence of diseases due to wastewater reuse.

- Mexico City's wastewater irrigates 90,000 ha of agricultural lands;

- Peru has more than 30 reuse projects along the country's desert coast, many using effluents from wastewater stabilization ponds;

- Mendoza, Argentina irrigates about 5,700 ha with effluents from several small wastewater treatment plants.

3.2.8 The reuse of wastewater for agricultural irrigation, if environmentally sound, can be an economically viable solution for agricultural food productivity. However, wastewater must then be treated to reduce health risks, and the crops produced should be regularly controlled for faecal coliforms and toxic contamination. A WHO Scientific Group has designed "Health Guidelines for the Use of Wastewater in Agriculture and Aquaculture" (WHO Technical Report series, 778, published 1989).

iv) Raising the Sector's Profile

3.2.9 The WSS sector has generally a low profile in developing countries' economies, due to lack of publicity, but also because it is not perceived as contributing directly to the economic growth process. This is exacerbated in the Region by LAC countries' high external debt which requires them to drastically reorient their economies to production output.

3.2.10 This macro-economic adjustment, however, has a cost which is mostly absorbed by social sectors, such as health, education, welfare. The impact hits the poor the hardest. While initially, in the early and mid-80's, the social dimension of this adjustment process has been largely neglected, social factors now receive more consideration in the design of structural adjustment programmes. Water supply and sanitation is not only a long-term contributor to economic growth, but also a vital element in the improvement of the overall social well-being of a population; a reason why the WSS sector should be considered as a factor in poverty impact alleviation of economic adjustment programmes.

3.2.11 The Decade has increased public awareness of the sector's importance, particularly in relation to health and other socio-economic benefits. However, its political ranking is still relatively low. Though nobody denies that WSS is good for health, a methodology to directly link the sector to health and other socio-economic benefits and quantify them, has yet to be developed. As a joint endeavor for the 1990s, ESAs may want to develop long-term monitoring systems which - over time - would allow the establishment of indicators to assess these benefits more precisely. It would be a strong tool to put the sector in the mainstream of productive economic activities.

3.2.13 For much of the Decade, WSS has been treated as a sector on its own. With increasing awareness of the environmental dimension of any development process, water supply and sanitation is also becoming associated with environmental protection and related issues. Environmental degradation affects most of the developing world and particularly the large urban centers of the LAC Region. The sector's perception in terms of water resources management, an integral part of environmental protection, may be another way for ESAs in the 1990s to elevate its ranking and to raise financial resources for sector development.

3.2.14 As large utility companies in Latin America become institutionally stronger and financially sound - some of them already have successful track records - privatization of sector operations should become a consideration for the 1990s and beyond. This would require the development and promotion of local capital markets. It would also allow scarce public funds to shift to sector areas which are chronically short of financial resources, i.e. serving the poor in periurban and rural areas.

3.2.15 Finally, coordination of sector activities, both within the external support community and among sector agencies of developing countries, has been rather sporadic in the past. The establishment of the Collaborative Council of ESAs and its joint outlook on sector development policies for the 1990s is a good start. However, in the 1990s, the CC must focus much more at country-level activities, seek ways and means to streamline and optimize the output of limited resources.

3.2.16 This can be achieved through improved information and data exchange, among ESAs, on investment projects, technology and social experiences. The CESI system is an existing tool in the process of expansion to regional and sub-regional centers with the purpose of achieving this objective. The UNDP/World Bank Water Supply and Sanitation programme has established Regional Water and Sanitation Groups (RWSG) in Abidjan

for West Africa; Nairobi for Eastern and Southern Africa; Delhi for South East Asia; and in Singapore and Bangkok for the Western Pacific Region and China. Similar regional activities for the LAC Region are currently coordinated from Washington, D.C. The programme, co-financed by bilateral ESAs, is concentrating on country-level activities in the respective regions and is an excellent focal point for donor coordination.

3.2.17 With these objectives in mind, external support agencies could make a major contribution in the 1990s and beyond to accelerate progress in service coverage and to improve health and overall living conditions in Latin America.

ANNEXES

Annex 1

External Support Community for Water Supply
and Sanitation in Latin America and Caribbean Countries

1. Multilateral Agencies

Commission of European Communities (CCCE)
Inter-American Development Bank (IDB)
UNCDF
UNDP
UNICEF
WHO/PAHO
World Bank/IDA

2. Bilateral Agencies

Belgium
CIDA, Canada
DGIS, Netherlands
Caisse Centrale, FAC, France
GTZ, Germany
ICI, Spain
JICA, Japan
KfW, Germany
ODA, U.K.
OCEF, Japan
SDC, Switzerland
SIDA, Sweden
USAID, USA

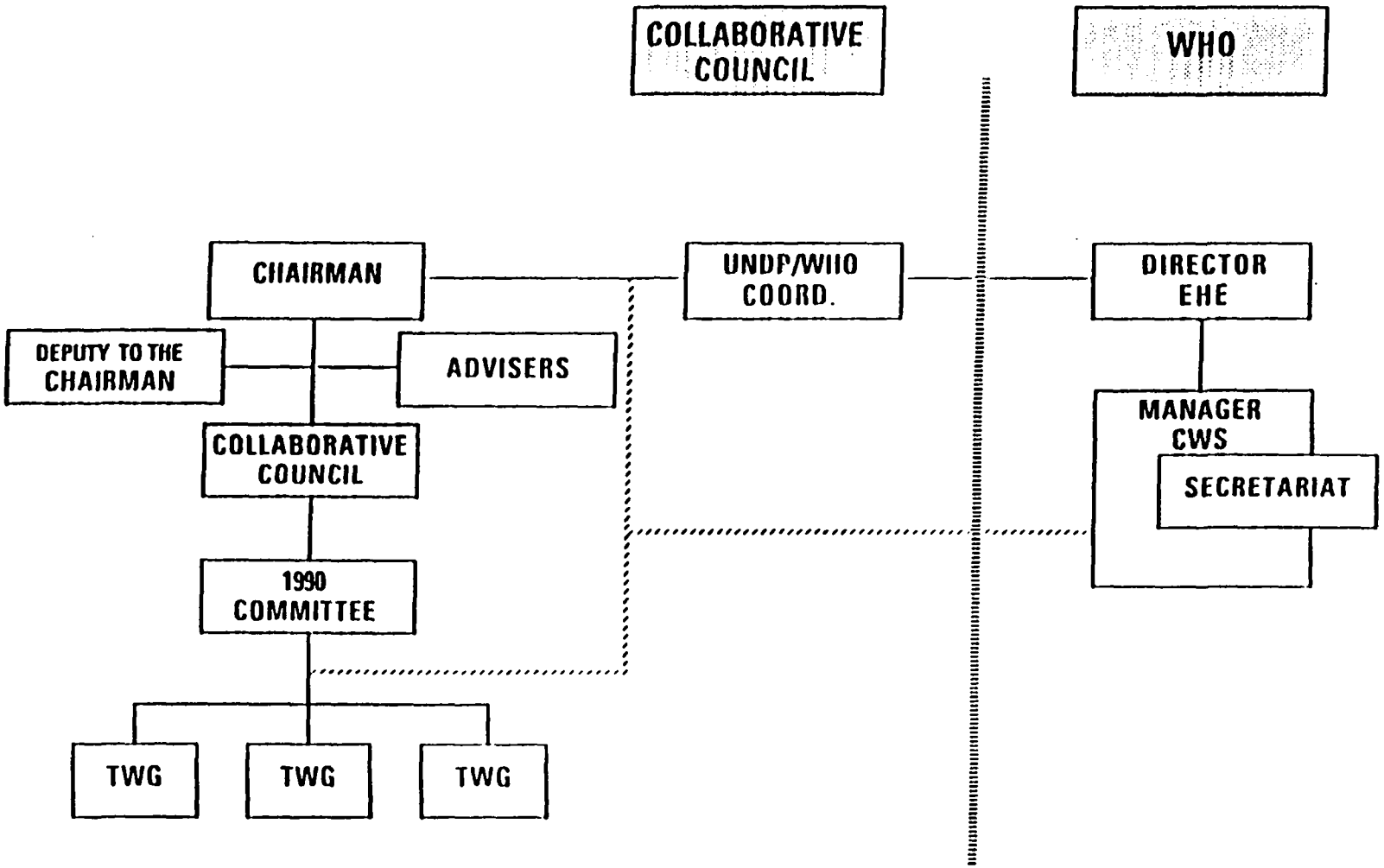
3. Non-Governmental Organizations (NGOs)

ACDA
APD - FRR
B'Delen
CARE
CNCD
OXFAM
PROTOS
SOS FAIM
CIWOS
WITHUIS
WUSC

Source: CESI, 4.24.90

Organizational Structure
May 1989
(Revised from 31/01/89)

SECRETARIAT AND CHAIRMAN OF THE COLLABORATIVE COUNCIL OF ESA's AND THE 1990 COMMITTEE



Annex 2

GLOBAL WATER SUPPLY AND SANITATION INVESTMENTS IN DEVELOPING COUNTRIES DURING THE DECADE, 1981-1990

ESTIMATES[1/] (figures in billions of US$ in 1981 terms)

REGIONS	PERIOD COVERED				
	1981 - 1985 incl.[2/]			Estimated Total ESA Capital Investment[3/]	
	Total Capital Investments by Dev. Co's and ESAs	ESA proportion %	Total ESA Capital Investments	1981-1988 incl.	1981-1990 incl.
Africa	6.3	80	5.0	8.3	10.8
Americas	20.0	15	3.0	5.0	6.5
South East Africa	17.2	17	3.0	5.0	6.5
Eastern Mediterranean	15.0	20	3.0	5.0	6.5
Western Pacific	5.5	36	2.0	3.3	4.3
TOTAL	64.0	25	16.0	26.6	34.6

1/ Covering investments of the mayor multi and bilateral external support agencies (ESA), including the UN-System and development banks. Overalll bilateral contributions are estimated at about 35% to 40% of total, vs 60% to 65% from multilaterals and development banks.

2/ Source: CESI

3/ Estimated annual ESA investment increase form 1981-1985: 9%; levelling off to about 3% growth per year for the 1986-1990 period.

Annex 4(a)

WORLD BANK GROUP WSS SECTOR LENDING (6.30.89)
WORLDWIDE AND TO THE LAC REGION

1. Cummulative Lending, until June 30, 1989
(in US$ millions, current terms)

	AFRICA			ASIA			EMENA			LAC			TOTAL		
	Total Operations	WSS Sector	% of Total	Total Operations	WSS Sector	% of Total	Total Operations	WSS Sector	% of Total	Total Operations	WSS Sector	% of Total	Total Operations	WSS Sector	% of Total
Bank IDA	14217.0 17102.0	701.9 520.2		57887.8 28890.2	1226.4 1125.6		43760.9 5475.3	2848.8 424.9		55616.3 1232.5	2921.2 38.6		171482.0 52700.0	7698.3 2109.3	
Total World Bank's Group	31319.0	1222.1	3.9	86778.0	2352.0	2.7	49236.2	3273.3	6.6	56848.8	2959.8	5.2	224182.0	9.807.6	4.4

2. Lending to LAC Region, 1980-1989
(in US$ millions, current terms)

	1980-84	% of total lending	'85	%	'86	%	'87	%	'88	%	'89	%	Total	%
WSS	1156.0	7.6	163.8	4.4	175.0	3.7	64.0	1.2	252.3	4.8	320.0	5.5	2131.1	5.3
Total Operations	15309.5		3698.2		4771.2		5152.0		5264.0		5842.1		40037.0	

Source: World Bank Annual Report 1989

INTERAMERICAN DEVELOPMENT BANK WSS SECTOR CUMMULATIVE LENDING BY COUNTRY - 1960-1990

(US$ millions, current terms)

1. Interamerican Development Bank WSS Sector
   Cummulative Lending by Country - 1960-1990
   (US$ millions, current terms)

COUNTRY	AMOUNT
Argentina	350.0
Barbados	16.9
Bolivia	71.0
Brazil	671.5
Chile	296.6
Colombia	430.1
Costa Rica	51.6
Ecuador	151.5
El Salvador	235.6
Guatemala	165.9
Haiti	111.5
Honduras	134.9
Jamaica	22.8
Mexico	342.2
Nicaragua	36.2
Panama	40.9
Paraguay	41.4
Peru	103.8
Dominican Republic	37.9
Trinidad and Tobago	7.9
Uruguay	164.4
Venezuela	256.6
TOTAL	3,741.2

Source: IDB, Washington, D.C., May 1990 (unpublished)

2. Annual Sector Lending - 1981 to 1989
   (US$ millions, current terms)

1981	1982	1983	1984	1985	1986	1987	1988	1989	Total
191.8	265.3	245.3	340.8	141.0	351.3	419.4	422.0	30.9	2,407.8

Source: IDB, Washington, July 1990

WORLD BANK LENDING TO LAC REGION BY SECTOR, 1980-1989

(millions of US dollars)

Sector	Annual Average 1980-84	1985	1986	1987	1988	1989
Agriculture and Rural Development	782.4	442.5	1,955.0	1,195.0	1,404.8	161.8
Development Finance Companies	263.2	195.0	252.4	1,115.0	970.0	864.3
Education	70.9	195.8	10.0	84.9	88.3	140.0
Energy						
Oil, gas, and coal	98.8	310.0	131.0	104.4	-	94.0
Power	546.2	833.7	819.2	423.8	423.0	736.0
Industry	131.3	4.0	-	55.0	1,065.0	860.0
Nonproject	60.7	435.0	705.0	1,050.1	277.0	1,492.0
Population, Health, and Nutrition	20.8	-	96.0	10.0	109.0	99.0
Small-scale Enterprise	205.2	340.0	70.0	185.0	-	155.0
Technical Assitance	6.0	29.5	47.5	15.5	-	50.7
Telecommunications	22.8	-	-	-	-	45.0
Transportation	465.2	662.0	140.6	524.3	210.6	149.3
Urban Development	157.2	86.9	369.5	325.0	464.0	675.0
Water Supply and Sewerage	231.2	163.8	175.0	64.0	252.3	320.0
TOTAL	3,061.9	3,698.2	4,771.2	5,152.0	5,264.0	5,842.1
Of which: IBRD	3,015.0	3,652.3	4,701.2	4,994.6	5,152.0	5,703.7
IDA	47.1	45.9	70.0	157.4	112.0	138.4
Number of Operations	56	41	43	58	37	43

Note: Details may not add to totals because of rounding.

Source: World Bank Annual Report, 1989

LEVELS OF GLOBAL WATER SUPPLY AND SANITATION SERVICE COVERAGE

TABLE 1. URBAN WATER SUPPLY: POPULATION COVERED IN DEVELOPING COUNTRIES (EXCLUDING CHINA)

in millions and as percentage of total population by WHO Region

Region	1980 (millions) (%)	1989 (millions) (%)	1990 Estimate (millions) (%)	1990 Target[1/] (millions) (%)
Africa	52.24 (68)	106.60 (76)	112.19 (76)	125.48 (85)
Americas	196.48 (83)	266.26 (84)	274.01 (84)	293.58 (90)
South-East Asia	158.17 (67)	234.27 (69)	242.72 (69)	299.00 (85)
Eastern Mediterranean	95.05 (84)	152.86 (91)	159.28 (92)	169.67 (98)
Western Pacific	48.36 (75)	69.45 (78)	71.79 (78)	81.92 (91)
GLOBAL	554.30 (76)	829.44 (79)	859.99 (79)	969.65 (89)

Percentages do not always convert to the same totals due to rounding of figures.

1/ Average targers by WHO Region; reduced from originally 100% to more realistic levels.

LEVELS OF GLOBAL WATER SUPPLY AND SANITATION SERVICE COVERAGE

TABLE 2. URBAN SANITATION: POPULATION COVERED IN DEVELOPING COUNTRIES (EXCLUDING CHINA)

in millions and as percentage of total population by WHO Region

Region	1980 (millions) (%)	1989 (millions) (%)	1990 Estimate (millions) (%)	1990 Target[1/] (millions) (%)
Africa	44.66 (54)	96.14 (68)	101.86 (69)	124.00 (84)
Americas	149.13 (63)	252.89 (80)	264.22 (81)	264.22 (81)
South-East Asia	68.46 (29)	120.82 (36)	126.64 (36)	270.86 (77)
Eastern Mediterranean	41.12 (36)	129.68 (78)	139.52 (80)	139.52 (80)
Western Pacific	59.32 (92)	83.80 (94)	86.52 (94)	86.52 (94)
GLOBAL	362.69 (50)	683.33 (65)	718.76 (66)	885.12 (81)

Percentages do not always convert to the same totals due to rounding of figures.

1/ Average targers by WHO Region; reduced from originally 100% to more realistic levels.

LEVELS OF GLOBAL WATER SUPPLY AND SANITATION SERVICE COVERAGE

TABLE 3. RURAL WATER SUPPLY: POPULATION COVERED IN DEVELOPING COUNTRIES (EXCLUDING CHINA)

in millions and as percentage of total population by WHO Region

Region	1980 (millions) (%)	1989 (millions) (%)	1990 Estimate (millions) (%)	1990 Target[1/] (millions) (%)
Africa	82.58 (30)	109.06 (33)	112.00 (33)	176.48 (52)
Americas	51.21 (41)	67.55 (54)	69.36 (56)	69.36 (56)
South-East Asia	287.72 (35)	614.39 (65)	650.69 (68)	650.09 (68)
Eastern Mediterranean	55.77 (32)	117.35 (55)	124.19 (57)	145.97 (67)
Western Pacific	46.13 (41)	74.40 (59)	77.54 (61)	96.61 (76)
GLOBAL	523.41 (35)	982.75 (56)	1,033.78 (59)	1,139.11 (65)

Percentages do not always convert to the same totals due to rounding of figures.

1/ Average targers by WHO Region; reduced from originally 100% to more realistic levels.

LEVELS OF GLOBAL WATER SUPPLY AND SANITATION SERVICE COVERAGE

TABLE 4. RURAL SANITATION: POPULATION COVERED IN DEVELOPING COUNTRIES (EXCLUDING CHINA)

in millions and as percentage of total population by WHO Region

Region	1980 (millions) (%)	1989 (millions) (%)	1990 Estimate (millions) (%)	1990 Target[1/] (millions) (%)
Africa	55.05 (20)	105.47 (32)	122.18 (36)	183.27 (54)
Americas	16.24 (13)	28.38 (23)	29.73 (24)	53.26 (43)
South-East Asia	57.63 (7)	126.52 (13)	134.17 (14)	267.93 (28)
Eastern Mediterranean	13.94 (8)	26.88 (13)	28.32 (13)	56.65 (26)
Western Pacific	72.01 (64)	82.71 (66)	83.90 (66)	102.96 (81)
GLOBAL	214.87 (14)	369.96 (21)	398.30 (23)	664.07 (38)

Percentages do not always convert to the same totals due to rounding of figures.

1/ Average targers by WHO Region; reduced from originally 100% to more realistic levels.

DECENIO INTERNACIONAL DEL ABASTECIMIENTO DE AGUA POYABLE Y DEL SANEAMIENTO
POBLACION CON SERVICIOS DE AGUA POTABLE, ALCANTARILLADO Y EVACUACION SANITARIA DE EXCRETAS
DATOS SOBRE LOS ADELANTOS ALCANZADOS EN 25 PAISES HASTA DICIEMBRE DE 1988**
(POBLACION EXPRESADA EN MILES)

				ABASTECIMIENTO DE AGUA POTABLE										ALCANTARILLADO Y EVACUACION DE EXCRETAS									
				POBLACION TOTAL SERVIDA				POBLACION URBANA SERVIDA				POBLACION RURAL SERVIDA		POBLACION TOTAL SERVIDA				POBLACION URBANA SERVIDA				POBLACION RURAL SERVIDA	
PAIS	POBLACION TOTAL	POBLACION URBANA	POBLACION RURAL	CON CONEX.	FACIL ACCESO	TOTAL	%	CON CONEX.	FACIL ACCESO	TOTAL	%	TOTAL	%	CON CONEX.	OTROS	TOTAL	%	CON CONEX.	OTROS	TOTAL	%	TOTAL	%
ARGENTINA	31074	26219	4855	18208	1763	19971	64	18208	944	19152	73	819	17	10261	17379	27640	89	10261	15958	26219	100	1421	29
BAHAMAS a/	241	136	105	126	114	240	100	126	9	135	99	105	100	22*	114*	136*	56*	22	114	136	100	0*	0*
BARBADOS b/	253	89	164	87	165	252	100	87	2	89	100	163	99	18*	24*	42*	17*	18	24	42	47	0*	0*
BELICE	175	90	85	70	65	135	77	70	5	75	83	60	71	20	107	127	73	20	55	75	83	52	61
BOLIVIA	6928	3471	3457	2311	898	3209	46	2311	374	2685	77	524	15	1394	960	2354	34	1394	520	1914	55	440	13
BRASIL	14426	106587	37839	96577	42252	138829	96	96577	9832	106409	100	32420	86	45000	68155	113155	78	45000	49896	94896	89	18259	48
CHILE	12748	10497	2251	10287	672	10959	86	10287	210	10497	100	462	21	8654	1983	10637	83	8654	1843	10497	100	140	6
COLOMBIA	31200	22100	9100	14500	12800	27300	88	14500	4900	19400	88	7900	87	12000	8300	20300	65	12000	6700	18700	85	1600	18
COSTA RICA	2866	1719	1147	1685	997	2682	94	1685	34	1719	100	963	84	722	2063	2785	97	722	997	1719	100	1066	93
ECUADOR	10203	5529	4674	3963	1918	5881	58	3963	190	4153	75	1728	37	3441	2317	5758	56	3441	719	4160	75	1598	34
EL SALVADOR	5032	2349	2683	1672	379	2051	41	1672	110	1782	76	269	10	1339	1706	3045	61	1339	671	2010	86	1035	39
GUATEMALA	8681	3287	5394	2393	2830	5223	60	2393	608	3001	91	2222	41	1617	3325	4942	57	1617	741	2358	72	2584	48
GUYANA	756	246	510	196	413	609	81	196	34	230	95	379	74	70	577	647	86	70	138	208	85	439	86
HAITI	5562	1581	3981	474	1851	2325	42	474	403	877	55	1448	36	0	1228	1228	22	0	650	650	41	578	15
HONDURAS	4625	1947	2678	1600	1747	3347	72	1600	140	1740	89	1607	60	1178	1709	2887	62	1178	539	1717	88	1170	44
MEXICO	89500	63500	26000	47000	14498	61498	69	47000	3928	50928	80	10570	41	33518	6917	40435	45	33518	4689	38207	60	2228	9
NICARAGUA	3622	2109	1513	1436	492	1928	53	1436	206	1642	78	286	19	685*	0*	685*	19*	685	N/D	685*	32*	0*	0*
PANAMA	2282	1111	1171	1063	823	1886	83	1063	48	1111	100	775	66	805	1104	1909	84	805	305	1110	100	799	68
PARAGUAY	3900	1733	2167	866	420	1286	33	866	260	1126	65	160	7	437	1810	2247	58	437	510	947	55	1300	60
PERU	21256	13890	7366	8679	3743	12422	58	8679	2100	10779	78	1643	22	7640	1223*	8863*	42*	7640	N/D	7640*	55*	1223	17
REPUBLICA DOMINICANA	6866	4038	2828	1913	1624	3537	52	1913	820	2733	68	804	28	882	3220	4102	60	882	2209	3091	77	1011	36
SURINAM	395	296	99	2	282	284	72	2	229	231	78	53	54	9	212	221	56	9	178	187	63	34	34
TRINIDAD & TABAGO	1230	840	390	730	450	1180	96	730	110	840	100	340	87	250	970	1220	99	250	590	840	100	380	97
URUGUAY	2990	2607	384	2387	152	2539	85	2387	132	2519	97	20	5	1436	370	1806	60	1436	119	1555	60	251	65
VENEZUELA a/	18757	15604	3153	12142	4614	16756	89	12142	1814	13956	89	2800	89	10611	6719	17330	92	10611	4509	15120	97	2210	70
TOTALES	415568	291575	123994	230367	95962	326329	79	230367	27442	257809	88	68520	55	142009	132492	274501	66	142009	92674	234683	80	39818	32

25 Países.
a/ Información base no disponible, se han utilizados datos de 1983.

* Datos insuficientes.
b/ Se ha utilizado información de 1985.

** Datos ajustados según información recibida de los países en 1987 y 1988.
N/D Información No Disponible.

1. En los casos en que no se ha proporcionado información se ha incorporado la mejor información disponible.
2. Debido a insuficiencia de datos, existen diferencias en los totales y porcentajes regionales.
3. Fácil acceso, se define como una fuente pública de abastecimiento de agua a 200 metros de distancia de la vivienda.

Annex 7

Annex 8

EXTERNAL DEBT
Trends Worldwide and in Latin American and Caribbean Countries

(US$ billions, current terms)

1. All Developing Countries

	1980	1982	1983	1984	1985	1986	1987	1988	Projected 1989
Total External Debt	572.2	752.9	818.9	854.6	952.3	1,046.8	1,176.3	1,155.9	1,165.5
GNP	2,059.5	2,107.1	2,020.2	2,046.2	2,086.3	2,140.5	2,330.0	2,631.4	2,640.0
Exports of goods and services	432.7	430.6	421.3	457.3	449.0	434.3	508.1	561.8	592.6
Total Debt Service	92.7	117.6	110.7	119.2	136.3	141.2	147.2	160.3	163.0
Ratios (%)									
Total External Debt/Export Earnings	132.2	174.9	194.4	186.9	212.1	241.0	231.5	205.8	196.7
Total External Debt/GNP	27.8	35.7	40.5	41.8	45.6	48.9	50.5	43.9	44.1
Debt Service Export Earnings	21.4	27.3	26.3	26.1	30.4	32.5	29.0	28.5	27.5

2. LAC Countries

	1980	1982	1983	1984	1985	1986	1987	1988	Projected 1989
Total External Debt	242.7	333.5	361.1	377.3	389.4	409.2	445.4	427.5	434.1
GNP	597.7	711.2	618.3	636.4	646.8	667.4	746.3	873.7	852.3
Exports of goods and services	124.8	123.9	118.6	131.6	126.3	110.7	122.8	137.5	146.2
Total Debt Service	46.1	59.0	50.0	51.3	53.9	51.9	47.5	55.7	58.0
Ratios (%)									
Total External Debt/Export Earnings	194.5	269.1	304.3	286.7	308.4	369.7	362.5	311.0	297.0
Total External Debt/GNP	34.8	46.9	58.4	59.3	60.2	61.3	59.7	48.9	50.9
Debt Service Export Earnings	36.9	47.6	42.1	38.9	42.7	46.9	38.6	40.5	39.7

Source: World Debt Tables, 1989-90, World Bank Publication

LAC REGION - ESTIMATED FINANCIAL REQUIREMENTS TO MEET 100% SERVICE COVERAGE BY 1990 POPULATION LEVELS

(Population in million)

		1990 (projected coverage)		1990	
				100% of. pop.	Diff. to be served (pop)
I. Urban:	WS	293.6	(90%)	326.2	32.6
	Sanitation	264.2	(81%)	326.2	62.0
II. Rural:	WS	69.4	(56%)	123.9	54.5
	Sanitation	29.7	(24%)	123.9	94.2

(US$ figures in 1989 prices)

I. Urban WS: 1990 estimated unserved population 32.6 mio

	% of population	per capita cost US$	US$ (million)
i) conventional systems	(25%)	120	978.0
ii) simplified systems	(50%)	60	978.0
iii) low cost systems	(25%)	20	163.0
Sub-total			2,119.0

II. Rural WS: 1990 estimated unserved population 54.5 mio

	% of population	per capita cost US$	US$ (million)
i) conventional systems	-	-	-
ii) simplified systems	(40%)	60	1,308.0
iii) low cost systems	(60%)	20	654.0
Sub-total			1,962.0