



PAN AMERICAN HEALTH ORGANIZATION  
WORLD HEALTH ORGANIZATION



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### **HEALTH, DRINKING WATER, AND SANITATION IN SUSTAINABLE HUMAN DEVELOPMENT**

Human development is the process of increasing people's choices, achieved by expanding essential human capabilities: health, knowledge, resources, and basic rights. Equity in access to these capabilities is a central element in the sustainability of development. By extension, access to drinking water and sanitation are instrumental in achieving health and sustainable human development (SHD).

Despite advances made in drinking water and sanitation coverage in the Region of the Americas, 76.6 million people still lack easy access to adequate water supply options; 103.3 million lack adequate sanitation options. In Latin America and the Caribbean, only 13.7% of the waste discharged by sewerage systems receives any sort of treatment. Furthermore, 50% of the countries that have information on continuity in the urban water supply report problems of intermittency. The percentage of the rural population in the Region without access adequate to water and sanitation is five times higher than that of the urban population. Furthermore, poor families spend proportionately more on this service than families with higher incomes.

Health protection goes beyond simply safeguarding the quality of the water consumed by the population. Producing and distributing good-quality water requires the sector to be well organized and regulated. The ministries of health must assume responsibility for safeguarding public health, advocating universal coverage, and reducing inequities. To this end they need to exercise the essential functions of intelligence-gathering, regulation, association, and negotiation, as well as direct intervention. In order to make these functions operational, it is necessary to strengthen the capacity of the ministries of health in management, consensus-building, and health promotion.

The objective of this document is: to stimulate discussion on the issue of health in sustainable human development and the instrumental role of water and sanitation; to describe the current situation of these services in the Region; to engage in critical analysis from the perspective of sustainable human development; and, within this context, to reflect on the proper role of the ministries of health.

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## **1. Introduction**

Despite the progress made in expanding the coverage of drinking water and sanitation services in the Region, major shortcomings persist in the coverage, quality, and equitable delivery of such services. These shortcomings primarily affect the inhabitants of rural areas, small urban centers, or the poorest families in the cities, limiting their capacity and potential to lead long and healthy lives.

PAHO, in collaboration with UNICEF and national work groups, regularly evaluates the Region's drinking water and sanitation situation. *Evaluation 2000*, which was based on data from 1998, made it possible to analyze the situation in the sector, revealing the persistence of shortcomings and inequities in the delivery of these services. The search for sustainable human development (SHD) and for healthy environments in the countries implies challenges and opportunities of an intersectoral nature, with the need for community participation to overcome the situation described above. The national health authorities are key actors in this process. In order to achieve proper management of health strategies and actions consistent with environmental and economic development policies, the majority of the countries need to adopt measures that will strengthen their managerial capacity in this area at both the national and local levels.

The purpose of this document is to offer conceptual considerations on sustainable human development, health, and the role of drinking water and sanitation in sustainable human development, and to shed light on the situation of the sector in the Region, focusing on Latin America and the Caribbean, to help identify and discuss ways to strengthen the role of the ministries of health in this area.

## **2. Elements of Sustainable Human Development**

Human development is a process of increasing people's choices, achieved by expanding human capabilities and functioning. At all levels of development the three essential capabilities for human development are for people to lead long and healthy lives, to be knowledgeable, and to have access to the resources needed for an acceptable standard of living.

Advancing human development is commensurate with realizing human rights. The 1948 Universal Declaration of Human Rights affirms that "everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing, and medical care and necessary social services." Subsequent international

human rights instruments reaffirmed people-centered development as a universal right, identifying as additional dimensions the right to security, participation, freedom of association, freedom from discrimination, and exclusion from development.

Concerns for equity take center stage in the human development perspective, particularly equity in basic capabilities and opportunities for all—equity in access to education, in health, in political rights. The essence and test of sustainable human development strategies must be to ensure a sustainable livelihood for all. These strategies are the need for people-centered development, with concerns for human empowerment, participation, gender equality, equitable growth, poverty reduction, and long-term sustainability.

Sustainability is an important dimension of human development. But such enhancement must be for both present and future generations without sacrificing one for the other, thus implying both intragenerational and intergenerational equity. To speak of “sustainable human development” is to avoid the misconception that sustainable development involves only the environmental dimension of development. There is no tension between human development and sustainable development. Development patterns that perpetuate today’s inequities are neither sustainable nor worth sustaining.

Sustainable development implies a new concept of economic growth—one that provides fairness and opportunity for all the world’s people, not just the privileged few, without further destroying the world’s finite natural resources and without compromising the world’s carrying capacity. Sustainable development is a process in which economic, fiscal, trade, energy, agricultural, and industrial policies are all designed to bring about development that is economically, socially, and ecologically sustainable.

Sustainable human development requires a new global ethic. Universalism in the recognition of life claims and concern for common survival must lead to policies for a more equitable world order. The concept of sustainability is greatly endangered where the income disparity between the richest 20% and the poorest 20% of the world’s population has doubled over the past three decades and when one-fourth of humanity is unable to meet its basic human needs.

## **2.1 *Poverty, Health, and Sustainable Human Development***

Poverty is basically the deprivation or reduction of capability. There are deprivations that are intrinsically important, such as poor health, malnutrition, or illiteracy, whereas others are mainly instrumentally significant, such as low income. An individual or a population’s health

status is both of an intrinsic or, constitutive, nature as well as instrumental with regards to human development. Poor health is in itself a cause of poverty, in the degree to which the less fortunate members of the society are systematically deprived of an intrinsically necessary component of optimal capability by being subject to higher levels of mortality and morbidity. Those developing countries that have invested in providing their citizens with universal access to basic health services, food security and nutrition, and adequate sanitation and educational opportunities may have populations with relatively low incomes but with a greater level of capability, and of health status, than that of richer countries with a much more uneven distribution of overall opportunities and capabilities.

It is important to note the indispensable role the health sector can play in all of these areas. Redistributing resources to the poor by improving their health, education, and nutrition is intrinsically important because it enhances their capabilities to lead more fulfilling lives. By increasing their human capital, it also plays an instrumental role in promoting future economic growth. There is emerging evidence that this is precisely the case: econometric studies being supported by PAHO in the Americas are showing that there is a robust correlation between improvement in health status and long-term economic growth. Those countries that have invested in improving the people's health and reducing the burden of disease of the majority of the population have achieved greater levels of sustained economic growth than those that have not.

One of the essential public health functions which the health sector must perform is to monitor, act, and advocate for the safety of the physical and social environment and to ensure that any development activity be adequately assessed in terms of its impact in environmental and social terms on the health of the population, particularly of its most vulnerable and voiceless members. Greater emphasis should be placed on evaluating the determinants of health status of different socioeconomic groups so as to provide a better understanding of the relevant types of health policies and health care services required to break the cycle of poverty. In this regard, more equitable access to supply-driven interventions (mainly preventive and health promotion activities, as well as health information) may have more importance for improving overall population health than demand-driven services, which are more geared to providing individual satisfaction of a perceived need.

## ***2.2 Trends in Urbanization and Poverty in Latin America and the Caribbean***

The total population of Latin America and the Caribbean continues to rise, as does its urban share, though less sharply than in the past. Seventy-three percent of the population lives in urban areas, with 45% concentrated in the major cities. The rural and urban populations

include inhabitants with varying degrees of marginality, who have failed to benefit from the economic growth of the Region.

The effort to achieve better health in sustainable human development must include policies conducive to sustained economic growth with a more equitable income distribution, linked to interventions enhancing the essential capabilities of the poor (health services, environment, nutrition, and educational opportunities).

During the past two decades in Latin America and the Caribbean the income distribution has not only become increasingly unequal, but also the most unequal in the world. Indeed, the average Human Development Index value for the Region is 0.752, which is higher than the HDI of all the developing countries taken together. However, this average has been obtained with great inequity, to the detriment of low-income groups in rural and marginal urban areas, i.e., women, ethnic minorities and young people.

In 1998 there were 160 million people living in poverty in Latin America and the Caribbean, meaning that more than a third of the population cannot fulfill its basic needs. More than 80 million inhabitants, 16% of the total population, subsist on less than US\$1 per day, actually a proportion that is slightly higher than that of 1987, and which represents a 20% increase in the number of people subsisting in extreme poverty over the past decade and a half. If income distribution in Latin American and the Caribbean was not so unequal, the increase in poverty between 1983 and 1995 would have been half. The impact of this growing income inequality in Latin America and the Caribbean with regard to the health status is evidenced by the fact that these countries enjoyed a five-year advantage in life expectancy over East Asia 30 years ago and it has now fallen behind by 1.2 years.

### **2.3 *Water and Sanitation in Sustainable Human Development***

The imperative of guaranteeing environmental health has been repeatedly emphasized in initiatives for sustainable human development. These initiatives, which reflect the efforts made by the countries, emphasize the instrumental role of water and sanitation in the quest for human development and fundamental capacities: health, knowledge, resources, and basic rights.

Water and sanitation are tools for health, and, by extension, of SHD. The proper and integral management of water and sanitation must include protection of sources, water treatment, and distribution to the population and industry; it must also address the collection, treatment, and sanitary disposal of wastewater and excreta. The absence of such measures

exposes the population to risks, disease, and death. Shortcomings in this integral management are reflected in the reemergence of cholera, with over 1.2 million cases and 12,535 deaths, and in the prevalence of gastrointestinal disease in the Region. In North America, this was exemplified in outbreaks of *Cryptosporidium* in 1993 in Milwaukee, USA (370,000 cases with 47 deaths), and *E. coli* in 2000 in Walkertown, Canada (over 1,000 cases with 6 deaths). In addition to these cases of a microbiological nature, others can be cited, attributable to contamination with chemical compounds such as organic pollutants, fluorides, arsenic, lead, and nitrates.

The population's awareness of the need to safeguard water resources and hygiene are key elements in the management of basic sanitation. Sanitation, when viewed as an input and as essential to meet the need for healthy workers, is key to industrial activity. The right to live in an acceptable, healthy environment requires access to good quality water and the proper excreta, wastewater, and solid waste management. Shortcomings and inequities in these services make impede the enjoyment of this right.

### **3. Current Drinking Water Supply and Sanitation Situation**

Based on the reports of the national working groups, the Coordinator of *Evaluation 2000* prepared a Regional Report which seeks to enhance analytical efforts with a subregional and regional perspective, and to identify trends to orient PAHO technical cooperation. In order to complement the *Evaluation 2000*, a study was conducted from the users' perspective. This study was aimed at identifying and analyzing inequities in water supply, utilization, and spending by using information obtained from multipurpose household surveys conducted between 1995 and 1999. The 11 countries that contributed data were: Bolivia, Brazil, Chile, Colombia, Ecuador, El Salvador, Jamaica, Nicaragua, Panama, Paraguay, and Peru. The databases and national and regional reports generated within the framework of the *Evaluation 2000* and the study of inequities are available for queries and comments at [www.cepis.org.pe/eswww/eva2000](http://www.cepis.org.pe/eswww/eva2000).

#### **3.1 Current Trends in Drinking Water and Sanitation Services**

The regional trend is toward the decentralization of drinking water services and sanitation, increasing the responsibility of local levels for administration, operation, and maintenance. This trend should be viewed within the context of sectoral reforms, which seek to improve the quality of services, cut costs, increase earnings, introduce innovative technology, expand coverage, and encourage informed and responsible user participation. The trend in these reforms is toward identifying three distinct functions: (1) sectoral policy

design, (2) service delivery, and (3) regulation. The policy role is exercised by a ministry, the regulatory role by an autonomous government agency, and the delivery role by autonomous public or private entities.

The business modalities for the delivery of services include: direct public entities, public or mixed corporations, and private (including nonprofit options such as cooperatives and associations). The Region provides examples of efforts to facilitate access by the poorest people to services without endangering the financial viability of the companies. Chile uses direct subsidies for the neediest populations, while in Colombia rates are set as a function of economic stratification, thus subsidizing the poorer segments of the population.

Another important trend is the search for a comprehensive approach to managing the different uses of water, including water for human consumption, food security, and the protection of ecosystems. This comprehensive approach to water management should contribute to improving the management of industrial and municipal wastewater, irrigation options, and the utilization of agricultural chemicals and pesticides. As a whole, it should improve the availability and quality of water through its positive impact on ecosystems, the health of the population, and the competitiveness of the agricultural and industrial sectors. A comprehensive approach to water management is critical in areas where it is scarce. Such is the case of cities where problems of water availability limit the quality of services (intermittency) and hamper efforts to bring the systems to new users (usually the poorest families).

### **3.2 Progress, Gaps, and Inequities**

During the second half of the 20th century the population of the Americas doubled from 400 to 800 million inhabitants, with the urban population (73%) predominating over the rural population (27%). Taken as a whole, the evaluations from the Region show that drinking water and sanitation coverage has been rising. Between 1990 and 2000 the water supply (household connection or easy access) in Latin America and the Caribbean rose from 80% to 85%, while sanitation (sewerage or *in situ* options) rose from 66% to 79%. (Tables 1 and 2).

Despite advances in water and sanitation coverage, conditions hazardous to health persist for major segments of the population in Latin America and the Caribbean. Indeed, 76.5 million people (15.4%) lack easy access to a “reliable” water supply option. A further 53.9 million (10%) are supplied through systems considered easy to access, but lack a household connection; this involves the burden of collection (typically borne by women and children) and hazards for public health. Furthermore, 103.2 million inhabitants (20.8%) lack



access to sanitation options. On average, the percentage of the population lacking access to drinking water services and sanitation is 5 times higher in rural areas than in urban areas. Furthermore, there are major inequities in coverage. For example, the *Evaluation 2000* shows that in Latin America and the Caribbean only 13.7% of wastewater collected by the sewerage systems receives treatment prior to discharge. This situation threatens the sustainability of water resources and makes it all the more difficult to provide water that meets criteria for quality and low health risks.

**Table 1. Water Supply Coverage in the Region of the Americas and in Latin America and the Caribbean**

Area	Millions of Inhabitants			Percentage (%)		
	Household Connection	Easy Access	No Service	Household Connection	Easy Access	No Service
Region of the Americas						
Urban	526.2	22.9	25.6	91.6	4.0	4.5
Rural	128.6	34.9	51.0	60.0	16.3	23.8
Total	654.8	57.8	76.6	83.0	7.3	9.7
Latin America and the Caribbean						
Urban	316.6	22.9	25.6	86.7	6.3	7.0
Rural	49.5	31.0	50.9	37.7	23.6	38.8
Total	366.1	53.9	76.5	73.7	10.9	15.4

**Table 2. Sanitation Coverage in the Region of the Americas and in Latin America and the Caribbean**

Area	Millions of inhabitants			Percentage (%)		
	Household Connection	<i>In situ</i>	No Service	Household Connection	<i>In situ</i>	No Service
Region of the Americas						
Urban	428.6	109.0	37.1	74.6	19.0	6.5
Rural	37.6	110.7	66.2	17.5	51.6	30.9
Total	466.2	219.7	103.3	59.1	27.8	13.1
Latin America and the Caribbean						
Urban	229.6	98.4	37.1	62.9	27.0	10.2
Rural	11.7	53.5	66.2	8.9	40.7	50.4
Total	241.3	151.9	103.3	48.6	30.6	20.8

These gaps in drinking water and sanitation also reflect other indicators of the quality of the services, apart from coverage. For example, 33 countries reported on the continuity of

their urban water supply systems; of these, 16 reported some degree of intermittency, with the countries of Central America, the Spanish-speaking Caribbean, and Haiti being most affected. Five countries reported that more than 95% of their systems provided only intermittent service. The lack of continuity in itself reflects poor utilization of the infrastructure; it furthermore lowers users' opinion of the service, and makes it that much more difficult to achieve economic sustainability.

Poor management of water resources threatens the quality of water in the supply systems and includes the discharge of improperly treated wastewater, as well as limitations in the infrastructure for the treatment and distribution of drinking water. In particular, the evaluation revealed are persistent shortcomings in the water disinfection infrastructure of several Central American countries and some of the Andean countries, where less than 26% of the systems provide disinfection. A long road lies ahead in this area. Even the most developed countries of the Region have amended their regulations and practices to improve the impact of their water treatment infrastructure and reduce chemical and microbiological risks.

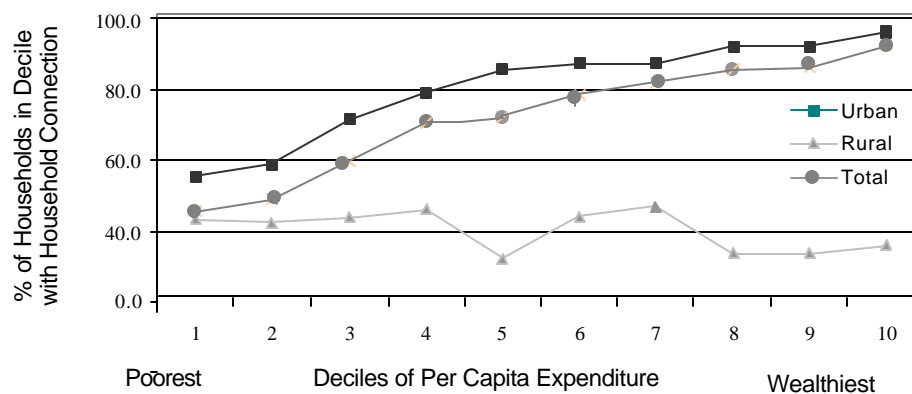
The population covered by adequate water monitoring and quality control systems (and drinking water and sanitation services in general) is quite limited in urban areas and negligible in rural areas. Fifty-two percent of the urban population in the Region of the Americas has effective water quality monitoring systems. This percentage drops to 24% for Latin America and the Caribbean, illustrating the precarious situation of these countries' populations with regard to quality assurance of their drinking water services.

The study on inequities showed that the poorest families are the ones who spend proportionately the most for this service, due to the cost of water coupled with their low income. This discrepancy is sharpest in urban areas, where the proportion of household expenditures allocated to water for the poorest families is 1.5 and 3.8 times higher than that of the wealthiest families. Furthermore, the study on inequities showed that:

- Water coverage is greater in higher-income families than in those with lower incomes. In four countries the ratio is greater than or equal to 4:1, and in one country it is on the order of 16:1.
- For similar levels of expenditure (or income), urban populations have better access to water than rural populations. In the case of Peru (Figure 1), even the poorest urban families have higher levels of household connections than the rural families with the highest per capita expenditures.

Despite the growth of large cities, a major segment of the Region's population lives in small rural or municipal hubs, where there is also evidence of inequity. In Colombia, for example, 70% of the population has access to good quality water; however, this level of service covers only 17.5% and 9.6%, respectively, of the population in localities with populations in the range of 2,500 to 10,000 and under 2,500 inhabitants.

**Figure 1. Access to Household Connections by Deciles of Per Capita Expenditure  
Peru, 1997**



### 3.3 Challenges and Outlook in the Current of Drinking Water and Sanitation Situation

The great challenge for the Region is to maintain or to achieve universal, equitable access to drinking water and sanitation services in the majority of the countries. In the case of water, this access must include adequate continuity, quantity, and quality at an accessible and equitable cost, if it is to protect health effectively and improve the productivity of the population. In the case of sanitation, access should include the management of excreta and other waste derived from the population's activities, consistent with local geographical conditions and the need to protect the environment.

The systems need to be conceived, operated, and maintained more efficiently. The cost of the systems should be consistent with the levels of service provided, and with the users' ability to pay; when necessary, there should be transparent subsidies that promote efficient usage while promoting the economic sustainability of the systems. The adoption,

development, promotion, and appropriate use of innovative methodologies and technologies continue to be relevant challenges for ensuring a more efficient and sustainable sector.

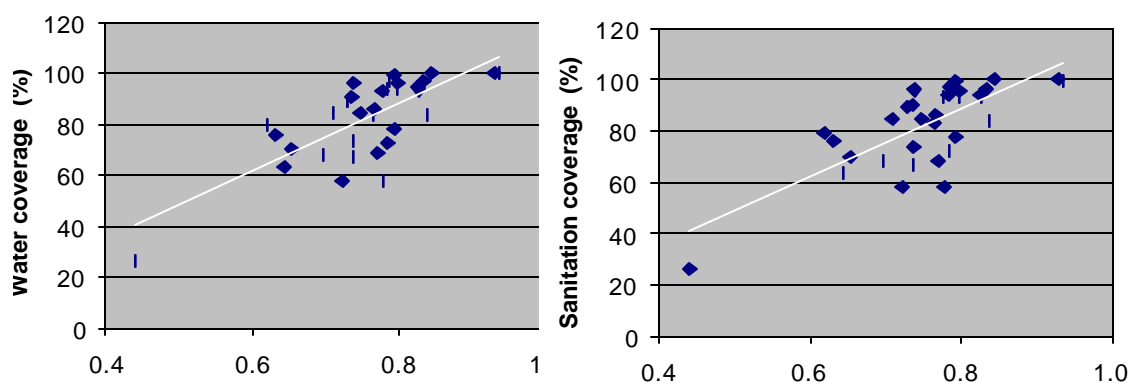
Within the context of the decentralization and reform of the drinking water and sanitation sector, it is imperative that the steering role and regulation in the countries be strengthened. The same holds true for the capacity to monitor the quality of the services.

### 3.4 *Considerations on Water and Sanitation in the Context of Sustainable Human Development*

These deficiencies in access to adequate water and sanitation involve problems of coverage, continuity, quantity, quality, and cost of the services, not to mention community time and effort spent in coping with these problems. Obviously, low-income families with the least access to these services) tend to use little water; they are also less likely to practice good hygiene and suffer from a higher incidence of diseases linked with deficient water and sanitation. For example, a PAHO study currently in progress in Nicaragua shows that cases of diarrhea in children aged 0 to 5 decline with access to household connections per inhabitant; cases in the intermediate quintiles of per capita consumption also present variations.

Drinking water and sanitation services are major tools for health; and health, in turn, is one of the essential capabilities underlying sustainable human development. Hence the correlation observed in Figure 2, between the Human Development Index (HDI) and the levels of water and sanitation coverage in the countries of the Region. Such evidence should help spur efforts—by society, governments, and the international financial and technical cooperation agencies—to raise coverage levels while meeting the criteria for quality.

**Figure 2. Relationship between water and sanitation coverage and the human development index in countries of the Americas, based on human development reports and the *Evaluation 2000***



The management models that have oriented the sector to date have simply failed to ensure the right of roughly one-fourth of the population of the Region to live in a healthy environment; rather, they have limited their individual capacities and participation in development. It is important for governments to take action to strengthen the managerial capacity of the actors in the sector, ensuring that new trends in sectoral management really do help to overcome the persistent inequities in drinking water and sanitation. Responsible participation by these actors calls for reliable and accessible information and a work environment that fosters learning in order to help classify the demand. It also calls for the participation of the community and other actors in improving drinking water and sanitation services in the Region.

In view of the importance of these services to health, the health authorities have a major role to play in promotion, surveillance, and regulation. As stressed in the report by the World Health Organization to a special session of the United Nations General Assembly in June 1997, the 21st Century calls for a new health system that is partnership-oriented, population health-based, and proactive rather than reactive.

#### **4. Role of the Ministries of Health**

Health protection goes beyond simply safeguarding the quality of water for human consumption. Distributing good quality water with continuity and at accessible prices requires a well organized, regulated, and administered sector, as well as the availability of high-level human resources. Drinking water and sanitation services should be consistent with environmental preservation; this is particularly true for the quantity and quality of water resources. Mechanisms are needed for surveillance, control, and evaluation; these must function efficiently and continuously. Water quality standards and surveillance laboratories are of little avail if the supply entities do not ensure the proper operation and maintenance of their installations, and if constraints on coverage persist, coupled with inequities in the supply of services.

The ministries of health should monitor and promote environmental health. Drinking water and sanitation are key to the management of environmental health. The participation of the ministries of health in this management effort must include objectives linked to public health, universal coverage of services, the reduction of inequities, and the quest for sustainable human development. In this context, the ministries of health have several essential functions:

- **Administration.** This function includes activities such as monitoring the quality of water for human consumption, accompanying the collection and analysis of samples with

participatory sanitary inspections of the drinking water and sanitation systems. These activities generate valuable information for the identification and characterization of risk factors. Proper management of the information thus gathered is essential in influencing decisions that involve efforts to reduce these risk factors, foster teamwork, or influence other health actors and sectors, the mass media, and community organizations. Such actions may be local or national in scope.

- Regulation. Includes the formulation of policies, laws, or standards to orient the role of the regulatory agencies, as well as participation in the governing bodies of these agencies.
- Association and Negotiation. Includes activities such as information management, mass communication, and intersectoral relations to engage in advocacy, agree on, or require action from other actors; activities aimed at overcoming constraints or inequities in drinking water and sanitation services; and the quest for healthy environments and sustainable human development.
- Direct Intervention. Includes promotion and follow-up activities in hygiene education to help to inform the demand and heighten the impact of drinking water and sanitation services by improving their utilization and evaluation. Also includes the capacity to participate in vulnerability analysis and in the preparation of contingency and emergency response plans, in order to intervene directly and support drinking water and sanitation areas that have a clear comparative advantage.

Strengthening the capacities and competencies of the ministries of health in the discharge of these functions will facilitate the organization of activities aimed at overcoming constraints and inequities in drinking water and sanitation, and enriching the capacities and rights of the people of the Region in the quest for sustainable human development. The strengthening of these capacities could be accomplished by giving priority to the environmental health units and renewing their authority to carry out activities within the framework of such functions. This administrative responsibility should be an integral element of the ministries of health, given its links with epidemiological surveillance, participation, and promotion, and the formulation of public policies. Within the framework of its technical cooperation activities, PAHO would work with the countries, and specifically the ministries of health, to help strengthen the capacity for managing health in sustainable human development.

## **5. Questions for the Subcommittee on Planning and Programming**

Below are a few questions designed to stimulate the discussion on the role of the ministries of health in drinking water and sanitation, within the context of sustainable human development:

- Do the work teams of the ministries of health effectively recognize and agree on the elements of sustainable human development and the key role of drinking water and sanitation in sustainable human development? Are the essential functions that were identified to strengthen the role of the ministries of health in this field adequate? Is the capacity-building effort posited in this document viable and of interest?
- Are there mass media and hygiene education activities that help to inform demand and improve the utilization and evaluation of drinking water and sanitation services? Is the information on drinking water and sanitation handled so that it spurs interest and facilitates responsible participation by the various actors involved in decision-making on a local and national scale?
- Can the scope and impact of the programs for monitoring and control of water quality be enriched with indicators that facilitate teamwork with other actors in sustainable human development? Would there be an interest in organizing technical cooperation activities in team learning environments in order to promote the implementation and use of such indicators? Are the countries requesting technical assistance programs for strengthening the managerial capacity of communities with the greatest constraints and inequities, consistent with their levels of education and their institutional and cultural reality?
- Is there a need to revitalize the promotion of programs and activities to promote universal access to drinking water and sanitation in the countries? What practical steps would be recommended? What role would the ministries of health play?