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MONITORING AND EVALUATION OF THE STRATEGIES OF HEALTH FOR ALL BY THE YEAR 2000

The Global Strategy for Health for All by the Year 2000, adopted by the WHO Member States, implied agreements on monitoring the advances made in the implementation of the national strategies and the evaluation at regular intervals of their impact in terms of improving the health status of the population. In 1986 the 39th World Health Assembly (Resolution WHA39.7) resolved to institute the presentation of monitoring reports every three years, in lieu of every two; beginning in 1985, evaluations of the effectiveness of the strategies will be carried out every six years.

With a view to supporting the Member States in monitoring the progress of their national strategies for Health for All (HFA) and facilitating the presentation of reports on their results to WHO, a *Common Framework and Format* was established under Resolution WHA45.4, 1992. The present report, which corresponds to the Third Monitoring and Evaluation of the Strategies for Health for All, is based on the results contained in the national reports received at Headquarters to 16 August 1994. The reporting countries represent almost 90% of the population of the Region of the Americas, a figure that is lower than that of the last evaluation in 1991. All National Reports were sent to WHO.

The results obtained at the national and regional levels will be analyzed by the WHO Executive Board and the World Health Assembly in 1995. The delegations to the XXIV Pan American Sanitary Conference are invited to analyze the present report, with a view to discussing the topic during the Meeting and contributing to the analysis to be conducted at the world level in 1995.

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INTRODUCTION

1. Background

In 1978, in Alma Ata, it was established that by the year 2000 all people in all countries should enjoy a minimum level of health. This implies that:

- the health status of all members of a population should be such that they can work productively and participate actively in the life of the community in which they live;

- health care sufficient to satisfy basic human needs will be accessible to all, in an acceptable and affordable way.

The Member Countries of the World Health Organization (WHO) embraced this goal.

In order to achieve the foregoing, it was agreed that health systems should be based on Primary Health Care (PHC), which was defined as essential health care that is technically valid, economically feasible, and socially acceptable.

The countries also agreed on the following basic indicators to be considered in monitoring and evaluating the strategies for health for all by the year 2000 (HFA/2000):

- trends in health status:

  - infant mortality rate (IMR);
  - maternal mortality rate (MMR);
  - life expectancy at birth;
  - percentage of low birth weight;
  - nutritional status;

- implementation of PHC: Essential Programs

  - maternal and child health care (prenatal, childbirth, puerperium, growth and development, family planning);
  - basic sanitation (drinking water and excreta disposal);
  - immunization (DPT, polio, measles, TB, tetanus toxoid);

- food supply and proper nutrition;
- primary health care services, including: control of locally endemic diseases; treatment of common diseases and injuries; provision of essential drugs and medications;
- health education and promotion.

- principal strategies:
  - development of national policies and strategies;
  - organization of services based on PHC;
  - management based on decentralization;
  - intersectoral collaboration;
  - community participation;
  - development and application of technology for the delivery of PHC;
  - health services research;
  - equitable distribution of physical, human, and financial resources for PHC.

The following minimum values, to be attained by the year 2000, were established for all the countries of the world:

- health status:
  - life expectancy at birth of 60 years or more;
  - infant mortality rate of less than 50 per 1,000 live births for all identifiable groups;
  - 10% or fewer newborns with a birth weight of less than 2500 grams;
  - 90% or more children with weight-for-age that corresponds to the reference values;
  - reduction of maternal mortality by at least 50%;

- essential PHC programs:
  - 100% of pregnant women with access to prenatal care provided by trained personnel;
  - 100% of deliveries attended by specialized personnel;

- 100% of puerperal women attended by trained personnel;
- 100% of children receiving growth and development monitoring;
- 100% of children fully immunized (DPT, Polio, Measles, TB) and 100% of pregnant women vaccinated with the tetanus toxoid;
- 100% of the population with access to drinking water and excreta disposal services;
- 100% of the population with minimum nutritional needs satisfied;
- 100% of the population covered by primary health care services, including treatment of common diseases and injuries, provision of essential drugs and medications, and control of locally endemic diseases.

Each region and/or country was free to establish different or additional goals and objectives, compatible with the foregoing, in accordance with its own needs, resources, culture, and specific problems. Accordingly, Europe established its own plan, as did the Canada, Cuba, and the United States of America, proposing not only much higher basic goals, but also incorporating goals relating to various issues not contemplated under the initial proposal, such as the quality of care, control of hypertension, anti-smoking measures.

For the Region of the Americas, the values established as targets to be achieved in all the countries included: life expectancy at birth of 70 years or more and infant mortality of 30 per 1,000 live births or less.

Four evaluation and monitoring exercises have been carried out at the world level: evaluation in 1985 and 1991 and monitoring in 1983 and 1988. The evaluation and monitoring instrument was revised and adjusted in early 1993. The new instrument, the "Implementation of Strategies for Health for All by the Year 2000. Third Monitoring of Progress: Common Framework" (CFM3) draws on the experience gained during previous evaluation and monitoring exercises. It covers the following areas: trends in health status, implementation of PHC, development of health systems based on PHC, resources for health, trends in healthy lifestyles, and population and socioeconomic trends. Some areas of the common framework have been simplified and others expanded; among the latter are the sections dealing with disabilities, quality of care, healthy lifestyles and environment, and emergency and disaster preparedness. Special emphasis has been placed on equity in health, with particular attention to the disparities between different population groups.

2. Situation in the Americas

Presented below is a brief summary of the situation in the countries of the Region with regard to certain aspects and indicators of the HFA/2000 and the implementation of PHC.

For the period 1990-1995, in only one of the 48 countries and territories for which estimates are available is life expectancy at birth under 60 years. Projections for the year 2000 indicate that all but five or six of the countries will have a life expectancy at birth of more than 70 years and in several life expectancy will surpass 75 years. With respect to infant mortality, of the 47 countries for which figures are available for the late 1980s and early 1990s, 8 have values of over 50 (but less than 100) per 1,000 live births, 7 countries have values ranging from 30 to 50; 20 have values ranging from 15 to 30, and the remaining 12 have values of under 15. It is difficult to make projections for the year 2000 based on the infant mortality figures of the early 1990s, but the downward trend would seem to indicate that only 10 countries or territories in the Region of the Americas will have values above the target level of 30 or less per 1,000 live births. As for maternal mortality, despite the lack of complete information, it appears likely that maternal deaths will have been reduced by half by the year 2000, although several countries will continue to have values of over 100 per 100,000 live births.

In regard to essential PHC programs, the greatest strides have been made in immunization. Of the 38 countries and territories reporting in 1993 (excluding the Canada and United States of America), coverage with the polio, DPT, and measles vaccines was over 80% in 28, 26, and 30 of them, respectively, with only one country registering levels of under 50%.

Progress in health care coverage during pregnancy and delivery has been slow. Of 40 countries with information on the proportion of births attended by trained personnel, 7 showed values of under 50% for deliveries, 4 had values of between 50% and 70%, and 23 reported with values of over 90%. Of the 39 countries reporting with regard to prenatal care by specialized personnel, 22 have values of over 90%, while 6 have values of 50% or lower.

In the area of basic sanitation, out of a total of 25 countries (which account for more than 95% of the population of Latin America and the Caribbean), the levels of access to drinking water achieved by 1988 were 88% among urban populations and 55% among rural populations. By 1992 the percentages had changed very little: 89% and 57% in urban and rural areas, respectively, and 80% of the total population. Of those 25 countries, 12 have coverage levels of under 70%. As for sanitary disposal of excreta, the values have also shown very little change. Urban coverage remained the same, at 80%, between 1988 and 1992, while rural coverage rose from 32% to 34%, for an

overall coverage level in 1992 of 67% of the total population. Of the 24 countries with information on excreta disposal in 1992, 14 had coverage of under 70%. Progress in this area has been slow in recent years.

The data on food supply and proper nutrition, treatment of common diseases and injuries, and provision of drugs and medications are extremely incomplete and are not continuous over time. The same is true of the data on health education and promotion.

The initial impetus provided by the launching of the Global Strategy for HFA/2000 during the early 1980s translated, at the Regional level, into the preparation of a Plan of Action and Strategies for HFA/2000 in the Americas. The Plan and the Strategies established the goals and objectives of the Region (both in terms of the basic indicators and additional indicators) and set forth a series of strategies and instruments, many derived from the contents of the Declaration of Alma Ata, which included aspects not contemplated originally. In addition, the Regional conception of PHC was expanded. Primary health care was seen not just as a basic package of programs and services available to the entire population; rather a more comprehensive approach was proposed, with the basic programs representing the point of entry for services that, added to the services provided at other levels, would ensure all necessary services for the entire population.

That initial impetus flagged for several reasons: fiscal adjustment, foreign debt, loss of leadership by the natural leaders of the sector (the ministries of health), lack of focus of the comprehensive version of PHC proposed in the Region. The Regional goals and those formulated by the various countries were neither evaluated nor updated, except in Canada, Cuba, and the United States of America, and the plans were never implemented. The commitments made were, in general, more of a formality than real. An analysis of the experiences with the principal strategies reveals the following:

- national policies and strategies: policies and strategies have been developed exclusively by the ministries of health without the participation of other subsectors, institutions, agencies, and groups within civil society. Nevertheless, the ministries have not organized themselves on the basis of the priorities and strategies for HFA/2000 and PHC, nor have they reallocated resources in accord with these new priorities;

- organization of national health systems based on PHC: except for offices created within the ministries of health in some countries, there has been no restructuring of services based on PHC. The comprehensive approach to PHC has remained a philosophy of health care that has not been given practical expression in the form of programs and the achievement of goals;

- management: progress has been made in the decentralization of health services, but decentralization has been considered more an administrative change than a means for furthering PHC. Few advances have been made in the information field. The collection, processing, and use of vital statistics has dwindled, and little headway has been made in regard to data on the production of services; the same has been true of data on resources, especially with regard to spending, financing, and costs;

- community participation: progress in this area has taken various forms, depending on the particular culture of the countries and, in many instances, of areas within countries. In a number of cases there has been community manipulation rather than community participation. Community participation has been used as a means for getting work done and not as a way of really involving the population in the formulation of programs and the implementation of PHC services. Of the four types of participation—in implementation, in the benefits, in evaluation, and in decision-making—the greatest progress has been made in the first, with considerably less of the other types of participation, especially the last two. Under the guise of participation, an effort has been made to share the work, but not the control and the allocation of resources; thus, the genuine commitment of population groups has dissipated in the midst of mere rhetoric from the central level about community participation;

- equity and redistribution of resources: in view of what was said above in regard to the reorganization of health services, little can be said about progress in reducing inequities in the distribution of physical, human, and financial resources and the availability of these resources to all population groups. Resources have not been redistributed, and the tertiary hospital level continues to be the hub of the health services system. Situations have occurred in which it was necessary to reverse decisions regarding the redistribution of human resources owing to the reaction of those affected. The issue of equity, one of the basic pillars of HFA/2000 and PHC (the other two being community participation and intersectoral collaboration) has to do with the differences in health status and access to services that are under human control; making equity a goal means accepting that avoidable inequalities, and therefore injustices, between people and population groups exist and need to be rectified. Recognition of this fact leads inevitably to the reallocation of resources and the reorganization of services—areas in which very little progress has been made in the vast majority of the countries of the Region;

- intersectoral collaboration: collaboration between sectors is the logical corollary to a comprehensive view of health that recognizes that myriad factors influence and determine health status and the presence of disease, both at the individual and the community levels. The contribution and impact on health of education, housing, public works, water and sanitation, food, social work, and communications, are widely recognized, and collaborative work by all involved sectors would seem essential and a matter of common sense. Nevertheless, the bureaucratic structures of the various sectors and the compartmentalization of the ministries of health, which tend to develop separate structures and hierarchies, coupled with a medicalized and "micro" approach, which sees only the sick individual, have made it impossible to achieve a "macro" and necessarily intersectoral approach to the processes that lead to health and disease.

3. Comments

It is difficult to make a blanket statement about what has happened in the Region, given the disparities in the various indicators and aspects of HFA/2000 and PHC. Headway has been made in some areas but not in others. Nevertheless, what can be affirmed is that despite some progress, the concept of PHC has not been internalized or made operational in health services systems, in either its comprehensive or its more narrowly focused form. What has occurred, both in terms of the services and the health of the population, cannot be related to HFA/2000 and PHC, because they have not been translated into real strategies and programs that have succeeded in mobilizing the sector, nor have they served as a guide for the establishment of priorities in the allocation of resources.

The current context does not inspire a great deal of optimism. Poverty is growing, especially in urban areas, and shows a persistent and almost irreversible trend. In rural areas, the difficulty of access continues to be a major obstacle, and migratory movements and the dispersion of the population discourage investments that might improve conditions in these areas. Fiscal adjustment has severely constrained social spending, which has limited the possibilities for increasing investment in basic sanitation and thus extending coverage to large segments of the population. Moreover, development has stagnated in the environmental sanitation sector, which is so important not only for health (as demonstrated by the cholera epidemic), but for the minimum well-being of the population. The demands of foreign trade and the decline in subsidies have reduced the real domestic availability of food, which has led to a decline in food intake or the substitution of foods of lesser nutritional value. The deterioration of public hospitals at a time of increasing unemployment (and as a result reduction in social security coverage), coupled with the rigidity of budgets that provide only for the payment of salaries and remunerations as an element of the administration of resources, leads to

a situation in which hospitals with personnel are available, but they function far below their potential owing to lack of basic supplies and equipment. At the same time, real and potential demand continue to grow with the employment crisis and the increase in medical costs. Finally, there has been a tremendous upsurge in violence, especially in urban areas, and in recent years this problem has become the principal obstacle to social interaction.

CHAPTER I

TRENDS IN HEALTH STATUS

1. Mortality Trends

The behavior and trends of life expectancy at birth, which is a synthetic indicator of mortality, are discussed in chapter VI of this document. The infant mortality rate—the most sensitive indicator and the most widely used to represent all mortality—declined even more than expected in most of the countries. A comparison of the figures presented in the annex with those reported three years ago reveals a reduction in all the countries. This was due, in the vast majority of cases, to the decline in mortality from diarrheal diseases, thanks to interventions and the behavior of the population in response to the cholera epidemic. Mortality rates also appear to have fallen in other age groups, with the exception, in some countries, of young males, owing to the increase in mortality from accidents and violence, especially homicide, in large cities.

The epidemiological profile of the Region continues to change, especially in terms of mortality. The relative importance of communicable diseases as the cause of death has decreased while that of chronic degenerative diseases has increased, especially in countries that have already noted an appreciable decline in general mortality and fertility. This change was foreseeable, given the aging of the population. However, the epidemiological profile has also changed as a result of external causes (accidents, homicides, suicides), which are becoming increasingly frequent causes of death in many countries. This is especially true of urban violence, which also has an impact on aspects of daily life.

Mortality will be analyzed here beginning with an examination of the trends of the four principal groups of causes: communicable diseases, diseases of the circulatory system, malignant neoplasms, and accidents and violence. Together, these groups of causes account, in most of countries, for 80% or more of total deaths from defined causes.

The adjusted rates were calculated according to the reference population and new estimates developed by WHO for the world population. The rates were calculated separately for each sex, and therefore the values for the two sexes are not comparable.

1.1 *Communicable Diseases*

This group of causes includes infectious and parasitic diseases (ICD 000-139), meningitis (320-322), and acute respiratory infections (460-466, 480-487). It is the group in which the reduction has been most marked in recent decades. The annex shows the adjusted rates corresponding to 1975-1979 and 1985-1989, for each of the sexes.

The countries with the lowest mortality from such diseases are those in which the adjusted rates have declined the least, especially in Canada and the United States of America. In Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, and Peru, the rates have decreased markedly in both sexes; in some cases, the reduction was on the order of 100 points or more. Nevertheless, the considerable amount of ground that remains to be covered is apparent from a comparison of the latest available figures, which reveal that the rate in Guatemala is 25 times higher than in Canada, both among males and females. Ecuador, El Salvador, Honduras, Nicaragua, and Peru have rates that are at least 10 times higher than Canada's.

If age is taken into account, the largest gains were made in the youngest age groups, especially children under five years of age. This is the age group in which the largest proportion of deaths from this cause are concentrated and consequently this is the group in which the greatest improvement was noted. As for age-specific rates (see *Health Statistics from the Americas* [HSA], 1992 Edition, PAHO), the reductions occurring in the under-1 age group from the beginning of the 1960s to the end of the 1980s (values for both sexes and per 100,000 live births) were: Argentina, from 2,100 to 500; Barbados, from 500 to 50; Canada, from 450 to 30; Chile, from 5,400 to 450; Colombia, from 4,100 to 1,200; Costa Rica, from 4,500 to 400; Cuba from 2,500 to 350; Dominican Republic, from 3,700 to 2,350; Ecuador, from 6,300 to 2,500; Guatemala, from 5,850 to 3,000; Mexico, from 4,500 to 1,800; Nicaragua, from 8,200 to 3,300; Panama, from 29,900 to 400; Paraguay, from 3,300 to 2,400; Peru, from 7,500 to 3,900; Puerto Rico, from 1,400 to 130; Trinidad and Tobago from 1,400 to 300; United States of America, from 350 to 50; Uruguay, from 1,250 to 400; and Venezuela, from 3,200 to 1,000. For the group aged 1-4 (rates per 100,000 population) although in term of points the reductions were less than those for the under-1 age group, they were more important in relative terms since mortality decreased by more than 70% and in some cases by more than 90%. In Costa Rica, for example, the rate fell from 625 to 22 per 100,000 children aged 1-4, while in Chile it declined from 570 to 31. Reductions were also registered in the other age groups, although to a lesser extent than in the preceding groups. In the countries in which the decline in communicable disease mortality occurred first in time and in which the death rates from this cause have fallen the most (as in Canada and the United States of America), the rates in the group aged 45-64 years have stabilized in recent years, while those in the group aged 65 and over

have risen. The same phenomenon was also noted in recent years among elderly groups of both sexes in countries such as Argentina, Barbados, Brazil, Chile, Puerto Rico, and Uruguay.

With regard to the specific causes within the group of communicable diseases associated with the greatest reductions, the main ones were infectious intestinal diseases (basically diarrheal diseases) and acute respiratory infections. The importance of intestinal infectious diseases as a cause of death is apparent from an examination of the figures for the period 1965-1990, when 6,050,000 deaths from this cause in all age groups were recorded, and intestinal infections accounted for 8.7% of total mortality; 80% of those deaths occurred among children under five years of age. For the period 1985-1990 the average annual number of deaths from infectious intestinal diseases among children under five years of age is estimated at 130,000. All the countries registered declines in death rates from this cause during the period 1960-1990, and the data for the early 1990s indicates that the rates have continued to fall, especially as an outcome of measures taken to combat the cholera epidemic. In this regard, however, it should be noted that it is difficult to separate secular trends from trends that may be a direct consequence of interventions aimed at improving hygiene, sanitation, and health services (especially through timely treatment and oral rehydration therapy) and modifying the behavior of the population, especially in regard to safe handling of food and water. In any case, what can be affirmed is that for several countries for which information is available for the years 1991 and 1992, mortality from diarrheal diseases declined substantially. The same trend was noted in other countries that had low mortality from diarrheal diseases prior to the cholera epidemic. This was due to the fact that the frequency of enteric diseases declined for the same reason that in other countries diarrheal diseases decreased.

In Venezuela, the number of deaths from diarrheal diseases fell from 2,538 in 1990 to 1,674 in 1991 and 1,210 in 1992, which represents a reduction of 48% in only two years. In Guatemala registered deaths from intestinal infections declined from 1.11 per 1,000 population in 1990 to 0.77 in 1991, a reduction of 33% in a single year. In Nicaragua, the number of registered deaths from intestinal infections decreased from 1,658 in 1990 to 847 in 1991 among children under one 1 and from 2,191 to 1,196 among all age groups, a reduction of almost 50%; preliminary data for 1992 point to a continuation of the downward tend. In Peru, although official data on mortality by cause is not available, extra-official information and data from the ENDES/DHS study conducted between October 1991 and March 1992, indicate that a considerable reduction has occurred, especially in infant mortality, in recent years. An intensive campaign of health education carried out in response to the cholera epidemic that began in Peru in 1991 succeeded in mobilizing both authorities and the public at large. As a result of the precautions taken by the population, including the observance of basic hygiene and the use of boiled water in order to avoid contagion, the prevalence of diarrhea in the two

weeks prior to the interviews conducted in the course of the study was lower than in 1986, even taking into account that the periods are not strictly comparable because almost half of the observations were made between January and March, which are the months with the greatest seasonal presence of diarrhea in coastal areas of Peru. Even countries not affected by the cholera epidemic, such as Cuba, the Dominican Republic, and Jamaica, reported clear declines in mortality from diarrheal diseases in 1992.

In order to better appreciate the downward trend in mortality from diarrheal diseases in children under five years of age over the period 1965-1990, a 5-level scale was constructed (rates are per 1,000 population for the age group): level 1 includes rates of less than 0.5; level 2, rates between 0.5 and 2; level 3, rates between 2 and 5; level 4, rates between 5 and 10; and level 5, rates of over 10. It should be noted that the level of 0.5 deaths per 1,000 children under five years of age is 7 times higher than the prevailing rates in Canada and United States of America in the mid-1960s. An examination of the improvements in the countries' rates during the 25-year period (1965-1990) reveals that Costa Rica dropped from level 4 to level 1; Argentina, Chile, and Trinidad Tobago, from level 3 to level 1; Cuba and Uruguay, from level 2 to level 1; Colombia, from level 4 to level 2; Belize, Brazil, Jamaica, Panama, and Venezuela, from level 3 to level 2; the Dominican Republic, from level 5 to level 3; Ecuador, El Salvador, and Mexico, from level 4 to level 3; and Guatemala, Honduras and Guatemala, from level 5 to level 4. Peru remained at level 4; Paraguay, at level 3; and Suriname at level 2.

Of the diseases included under the designation "acute respiratory infections," which are at present among the leading causes of death in children under five years of age in most of the countries, pneumonia is the biggest problem. In 1986, this disease accounted for 85.6% of all deaths from acute respiratory infections in the Region of the Americas. The next most frequent causes of death in this group were bronchitis and bronchiolitis, which accounted for 7.4%; influenza, which accounted for 3.8%; and other acute respiratory infections, which caused 3.2%. For the period 1985-1990 the annual number of deaths from pneumonia and influenza among children under 1 year is estimated at 104,000, yielding a rate of 6 per 1,000 live births. The rate in 1970 was estimated at 9 per 1,000 live births. Although the rate declined 33% during the period, the reduction could have been greater, as can be confirmed by comparing the rates for the various countries: While in Canada and the United States of America the rates during the period 1985-1990 were 0.15 and 0.20 per 1,000 live births, respectively, none of the remaining countries in the Region had a rate of less than 1, and the rate was over 20 per 1,000 live births in Bolivia, Haiti, and Peru. As for comparisons of absolute figures, of the 104,000 estimated deaths of children under 1 year of age from pneumonia and influenza, only 1,000 occurred in Canada and the United States of America.

The situation of mortality from pneumonia and influenza in the group aged 1-4 years is similar; the rate for the entire Region decreased from 90 per 100,000 in 1970 to 68 in 1985-1990; the estimated annual number of deaths for the latter period is 40,000, only 200 of which occurred in Canada and the United States of America. The tremendous variability and potential for improvement can be seen from a comparison of the mortality rates: While for North America (excluding Mexico) the estimated rate is 1.4, in South America it is 107 (Brazil, 124; Southern Cone, 21; and Andean Area, 127); in Central America, 109; in Mexico, 34; in the Latin Caribbean, 127; and in the rest of the Caribbean, 27.

1.2 *Diseases of the Circulatory System*

It is only in recent years that programs to combat diseases of the circulatory system have come to the fore in the developing countries. These programs target mainly the cardiovascular diseases, which have become into the leading causes of death among all the noncommunicable diseases. In Latin America and the Caribbean, the proportion of total deaths due to cardiovascular diseases reached 25% during the period 1985-1990.

The proportional increase in mortality from cardiovascular diseases has led to the development of priority programs to combat these disease, the identification and recognition of various risk factors for heart disease and other diseases of the circulatory system against which preventive measures can be taken, and recognition of the fact that mortality from cardiovascular disease has been declining in the developed countries in recent years. In Canada and the United States of America, for example, specific mortality in the group aged 45-74 peaked in the late 1950s and then began to decline in the early 1960s, mainly as a result of reductions in death rates from ischemic heart disease and cerebrovascular disease.

The growing importance of these disease, in addition to their impact on mortality, is reflected in data on morbidity and medical care, including hospitalizations, consultations, and services for the prevention, control, and treatment of cardiovascular disease.

As of the early 1990s cardiovascular diseases accounted for fewer than 20% of all deaths from defined causes in only a few countries of the Region of the Americas. In most of them this cause accounted for more than 30%, and in several the proportion was over 40%. Although death records are incomplete and in some cases of dubious reliability, indirect methods based on the epidemiological transition as well as studies at the community level have made it possible to estimate the annual number of deaths from cardiovascular diseases in the late 1980s at approximately 800,000. That number, which as noted above represents some 25% of all estimated deaths for the same period, was not

distributed equally by sex, the proportion of male deaths being slightly higher than the proportion of female deaths (53% and 47% of the total, respectively).

The change in the profile of causes of death is the result of the effect of various factors, which generally do not work in the same direction. The three principal ones are: the demographic component, the risk factor component, and the therapeutic component. With regard to the demographic component, the age distribution has been changing in all the countries of the Region, although the change has proceeded at different paces in different countries. The groups comprising adults and the elderly have grown more rapidly, in absolute numbers and in proportional terms, than other age groups, and as a result noncommunicable diseases, especially cardiovascular disease, have become increasingly frequent. The effect of this component was felt first in the countries in which the age distribution of the population shifted several decades ago: Argentina, Barbados, Canada, Cuba, the United States of America, and Uruguay. In most of the other countries, this process has taken place in the last 30 years.

As for the second component, risk factors, changes in the prevalence and magnitude of exposure to risks have altered specific rates of morbidity and mortality; they take the form of changes in the exposure of males or females or specific age groups to underlying or associated causes of specific diseases, such as those that accompany the development process: urbanization, industrialization, changes in lifestyles (eating habits, alcohol consumption, tobacco use, sedentary lifestyles, use of contraceptives), which may lead to hypertension, elevated cholesterol, obesity. Although it is recognized that such development-related changes have had a greater effect on the communicable diseases—especially as a result of population-level interventions like sanitation and vaccination, which have changed some underlying causes—they have also have had an impact on noncommunicable diseases. It should be noted, however, that the dividing line between risk factors and diseases is not always clear. This is the case with hypertension, which can be seen both as a risk factor for cardiovascular disease and as an early manifestation thereof. Changes in risk factors have been observed more in the developed countries of the Region—Canada and the United States of America—especially, in recent decades, in the population over 50 years of age and are associated with the tremendous reduction in cardiovascular disease mortality in that age group in those countries.

The third component, the therapeutic component, has led to changes in the probability of a sick individual becoming a chronic patient or dying, as a result of changes in access to, use of, and the effectiveness of curative services (surgery, transplants, drugs). These interventions, even though they are clearly effective (as well as costly), are not universally available, so they can have had only a limited impact on the decline of overall mortality from cardiovascular disease. The importance of this component is growing rapidly, especially in countries such as Canada and the United States of America.

Some confusion has arisen about the growing importance of cardiovascular diseases, in many cases due to lack of clarification with respect to the indicators being used: number of deaths, proportion of deaths, crude or adjusted rate, specific rates. It must be understood that each of the foregoing measurements has different properties and, while they may be complementary, cannot substitute for one another.

Proportional mortality measures the relative importance of a cause with respect to other causes, rather than the absolute importance, thereby making it possible to draw comparisons. Growth in the proportion of deaths attributed to cardiovascular diseases—unlike what occurred in previous decades, when the proportion increased steadily in all the countries—slowed between 1980 and 1990 and even declined in the countries that were already registering high proportions (over 40%) in 1980 (Canada, Cuba, Puerto Rico, Trinidad and Tobago, the United States of America, and Uruguay). The proportion in Argentina has remained practically unchanged. Of the 22 countries for which information is available circa 1990 (see HSA, 1992 edition), in 20 of them cardiovascular diseases are the leading cause of death; only in Nicaragua and Peru are they surpassed by communicable diseases.

The age-adjusted rate attempts to construct a synthetic value based on specific rates by applying the age-specific rates to a single standard population. This indicator makes it possible to compare data for the same population over time and compare a given population with other populations, as long they do not differ too much with regard to age structure. As a synthetic indicator of mortality, presented in the Annex are age-adjusted rates for both sexes for the period 1985-1989. A comparison of the rates for the period 1975-1979 (see *Health Conditions in the Americas* [HCA], 1994 edition) for each sex reveals a clear downward trend in the vast majority of countries, the largest decline being in Canada and the United States of America.

Two aspects of the age- and sex-specific rates stand out. First, the rates are low up to the age of 45 years; they begin to rise at 45, with a marked increase in the population aged 65 and over. In addition, male mortality is higher than female mortality, especially in the group aged 45-64, in which in several countries the ratio is higher than 2:1. Second, are some notable characteristics of the trend for cardiovascular diseases in the Region. A clear trend toward increased mortality in the first year of life in recent years can be discerned in several countries, including Argentina, Canada, Colombia, the Dominican Republic, El Salvador, Peru, Puerto Rico, the United States of America, Uruguay, and Venezuela. In the case of the United States of America this is presumably due to a better diagnosis of congenital conditions. Another clear trend, starting at 45 years of age, is the separation into two groups of the countries for which rates have been available since the 1960s. The first group comprises countries in which the downward trend in the rates began prior to the 1980s; it includes Barbados, Canada, Trinidad and

Tobago, and the United States of America. The second group is made up of countries in which the downward trend did not begin until the 1980s.

As has been noted above, the greatest number of deaths from cardiovascular diseases occurs in the groups aged 45 and over. In Latin America and the Caribbean, these groups account for as much as 91% of all deaths from this cause among males and 92% among females, although because these diseases generally appear earlier in men, the group aged 45-64 accounts for 27% of all male mortality from this cause and 18% of female mortality. In 1990 in almost all the countries, mortality from cardiovascular diseases was concentrated in the population over the age of 45, which accounted for up to 90% of total mortality from this cause. Brazil is the country that shows the highest value: 34% of male mortality from cardiovascular diseases in the group aged 45-64. With respect to Canada and the United States of America, in 1990 the group aged 45 and over accounted for 97% of male mortality from cardiovascular diseases in both countries, while among females the percentages were 99% and 98%, respectively (78% and 77% among males aged 65 and over and 92% and 90% among females aged 65 and over). It should also be pointed out for the latter countries that not only has mortality from cardiovascular diseases diminished, but, consistent with the foregoing, deaths from this cause are occurring at more advanced ages. In the United States of America the average age of males who die from these diseases rose from 69.1 to 73.1 years between 1955 and 1980; among females the respective ages were 73.4 and 79.8 years.

The correlation between this decline in the United States of America and changes in lifestyles, expressed in terms of the prevalence of certain risk factors, is very strong, particularly as these changes have been taking place for several decades. Between 1960-1962 and 1988-1991 the age-adjusted mean of the total cholesterol level for adults aged 20-74 declined from 220 to 205 mg/dL; for the same period the percentage of adults aged 20-74 with high cholesterol levels ($\geq$240), declined from 32% to 20%. Alcohol consumption has diminished both among young people aged 18-24 and adults and the elderly, both among males and females. The percentage of the population aged 55-74 with high blood pressure has also decreased, particularly in the group aged 65-74, among whom the proportion decreased from 76% to 70%. Overweight in the groups between 20 and 74 years of age rose among those aged 20-54 years but declined in the other age groups. Hence, between 1980 and 1990 the adjusted mortality rate from diseases of the heart, the leading causes of death, declined 25%, continuing the trend observed since the mid-1960s. A similar trend was noted with cerebrovascular accidents, the third leading cause of death, which declined 32%.

The cardiovascular diseases (ICD-9 390-459) comprise a diverse set of diseases of the circulatory system, which include ischemic heart disease (410-414), cerebrovascular disease (430-438), atherosclerosis (440), hypertensive disease (401-405), chronic rheumatic heart disease (393-398) and diseases of pulmonary circulation and

other forms of heart disease (415-429), and others (rest of 390-459). The last category, "others," includes a highly diverse set of diseases of varying degrees of importance, among them acute rheumatic fever (390-392), the incidence of which as a proportion of all cardiovascular diseases is quite low, and diseases of arteries, arterioles, and capillaries (441-459), excluding atherosclerosis. In some countries of the Region, the cardiomyopathy associated with Chagas' disease is also common.

Of the six groups (the group of "other" diseases is excluded owing to the varied nature of these diseases and their relative unimportance), there is one group whose values and behavior in the different countries merits special consideration because it can invalidate both the values calculated and the comparisons made over time in a single country or between countries. This is the group comprising diseases of pulmonary circulation and forms of heart disease other than those specified elsewhere (415-429). It includes two codes: 427, cardiac dysrhythmia (which includes cardiac arrest), and 428, cardiac insufficiency; these two codes are used in many cases to classify other cardiovascular diseases or other causes. The foregoing makes it difficult to calculate rates and analyze the trends of the two most frequent diseases of the circulatory system, which are ischemic heart disease and cerebrovascular disease. For example, in Argentina this subgroup accounted for almost half of all deaths from diseases of the circulatory system in 1990, among both males and females, and the proportion increased with the transition from ICD-8 to ICD-9. In other countries this subgroup also accounts for a high percentage of total deaths.

Apart from this group, ischemic heart disease is the leading cause of death among the cardiovascular diseases, followed by cerebrovascular diseases; in third place, depending on the country, is hypertensive disease or atherosclerosis. In general, all these diseases share common risk factors, which can be identified: high blood pressure, high cholesterol and low-density lipoprotein levels, smoking, use of oral contraceptives among women, family history, and obesity for ischemic heart disease; hypertension, smoking, use of contraceptives among women for cerebrovascular disease. At the same time, many of the same intervention measures have been used to good advantage in the Region to prevent and control the two types of disease. These measures are: screening, control of hypertension, control of cholesterol level through proper diet, smoking cessation, physical exercise, education for self-monitoring.

Among women, in Canada, Colombia, Costa Rica, Cuba, Panama, Puerto Rico, and the United States of America, ischemic heart disease predominates. In Chile, Mexico, Trinidad and Tobago, and Venezuela a shift occurred in the 1980s from higher mortality from cerebrovascular diseases to predominance of ischemic heart disease. In the remaining countries, cerebrovascular disease predominates. Among men ischemic heart disease predominates, except in Belize, Brazil, Ecuador, Nicaragua, and Paraguay.

In comparative terms, by sex, while in men the proportion of circulatory system deaths due to ischemic heart disease is larger than in women, for cerebrovascular diseases, the situation is reversed, with the largest proportion of deaths from this cause occurring among women.

With respect to the other two important groups, hypertensive disease and atherosclerosis, their relative importance is always greater in women than in men. Among both groups they account for between 7% and 12% of all deaths from cardiovascular diseases, except in Canada and the United States of America, where the proportions are considerably smaller, and Belize, Colombia, Peru, Puerto Rico, and Trinidad Tobago, where the total of the two percentages is greater.

Information about the behavior of the population with respect to risk factors is scanty and not systematized. Not even the studies on the correlation between the decline in mortality from cardiovascular diseases in some countries and the factors that may have contributed to it have been documented in most of the countries of Latin America and the Caribbean. There is evidence—although it is limited in terms of the time period and population covered—of some changes in the attitudes and behavior of some population groups that have had an influence in preventing cardiovascular diseases: reduced tobacco and alcohol consumption, changes in diet, control of hypertension, exercise. However, given their limited representativity and lack of association with the natural history of cardiovascular disease in the groups studied, none of the available studies can be considered conclusive with respect to the possible impact of behavior on the reduction of these diseases. As to the use of advanced diagnostic and therapeutic technologies, these have been more widely used in recent years and may explain some of the reduction; however, because their coverage is limited to certain population groups, their statistical significance is not sufficient to explain all the changes observed.

Certain information is needed in order to adequately analyze mortality from cardiovascular diseases in Latin America and especially to analyze trends and make comparisons. In addition, there is a need for uniform criteria for the certification and coding of causes of death. For example, additional data on the distribution, causes, and natural history of cardiovascular diseases are needed to permit the study of the incidence, prevalence, case-fatality rates, and prognosis. There is also a need to know the prevalence of modifiable risk factors. Furthermore, studies are needed to determine the effectiveness of interventions in reducing the risks of cardiovascular diseases and to develop culturally appropriate strategies for conducting campaigns in the mass media and with the community aimed at modifying behaviors that have an impact on the prevailing risk levels.

1.3 *Malignant Neoplasms*

The average annual number of deaths from malignant neoplasms in the Region of the Americas in 1985-1989 was 900,000 (540,000 in North America and 360,000 in Latin America and the Caribbean). That number made up 16.6% of the total number of deaths from all causes, which was 5.4 million (23.2% in North America and 11.7% in Latin America and the Caribbean). As with diseases of the circulatory system and external causes, with exceptions, the trend has been toward increased proportional mortality from malignant neoplasms. This is due, basically, to the tremendous reduction in mortality from communicable diseases, especially in the youngest age groups, and to the change in the age structure of the population. Of 35 countries or territories for which information existed in the 1960s, this cause accounted for fewer than 10% of deaths in 19 of them, whereas by the mid-1980s the proportion remained under 10% in only 1 of 31 countries with data corresponding to 1985 or later. In many countries the proportion has risen to close to 20% or more: Argentina, Bahamas, Barbados, Canada, Costa Rica, Cuba, Chile, Caiman Islands, Turks and Caicos Islands, Martinique, United States of America, and Uruguay. The trend has not been the same in all the countries that were already in advanced stages of the demographic transition in 1960: In Barbados, Canada, the United States of America, and Uruguay proportional mortality from malignant neoplasms continued to increase between 1960 and 1990, whereas in Argentina Cuba, and Puerto Rico, the proportion has tended to stabilize.

The occurrence of malignant neoplasms varies significantly according to age and sex. The Annex shows the age-adjusted rates for males and females for the period 1985-1989, which can be compared with other periods dating from the early 1960s (See HCA, 1994 edition) for a set of countries that represent close to 95% of the population of the Americas in 1990. While clear differences can be discerned between proportional mortality in countries in advanced stages of the demographic transition and countries in less-advanced stages, the adjusted rates, in both males and females, show no clear association with stages of the demographic transition. Although Canada and the United States of America are the countries that have had and continue to have the lowest fertility and mortality rates in general, they are not the countries that have had or have the highest rates of death from malignant neoplasms, for males or females. In most countries, the greater numerical importance of other diseases, especially communicable diseases, in the past, coupled with the lack of data on cancer mortality, because the only statistics available have concerned registered deaths, has concealed the fact that for the past several five-year periods these countries have had rates comparable to those of the developed countries.

Among females the rates have shown a clear trend toward reduction or stabilization. The most appreciable declines have occurred in Argentina, Costa Rica, Puerto Rico, and Venezuela, where rates have fallen by close to a third. The range of

rates has also decreased: from a low of 88 (Guatemala) and a high of 166 (Venezuela) per 100,000 in 1960-1964 to a low of 81 (Mexico) and a high of 140 (Uruguay) per 100,000 in 1985-1989.

Among males, the pattern has not been as homogeneous as among females. While rates have clearly declined in Argentina, Costa Rica, the Dominican Republic, and Venezuela, they have gone up in Canada, Ecuador, Puerto Rico, and the United States of America. In the other countries rates have varied less—about 10%—with respect to the values in the 1960s. The country that has shown the least change over time is Uruguay, whose rates have consistently been among the highest, for both males and females.

It should be pointed out that comparisons between the adjusted rates for males and females are not valid because the structure of the standard populations for the two sexes is different.

Given the differential behavior of the rates by age and sex, the focus of the analysis is the last two age groups, comprising those 45-64 years of age and those 65 and over, since these age groups account for the bulk (around 90%, and over 95% in the United States of America) of all deaths from malignant neoplasms. Accordingly, the values and changes observed in these groups determine the general trend of malignant neoplasms in the population. A downward trend has been noted in the 45-64 age group (with exceptions: Canada, Peru, the United States of America, and Uruguay in both sexes, Barbados and Trinidad and Tobago in men).

Based on estimated mortality from malignant neoplasms and United Nations population estimates, the estimated annual average numbers of deaths from tumors have been calculated. A comparison of the foregoing figures with estimates of annual average numbers of deaths from all causes for the same period reveals that while malignant neoplasms accounted for 7.2% of total mortality in Latin America and the Caribbean in 1960-1964, by 1985-1989 the proportion had risen to 11.7%. For North America the values were 16.5% and 23.5%, respectively.

With regard to proportional mortality according to location of the malignancy, the most frequent sites are (corresponding ICD-9 codes appear in parentheses): stomach (151), colon (153), other digestive organs and peritoneum (150, 152, 154-159), trachea, bronchus, and lung (162), other respiratory and intrathoracic organs (160, 161, 163-165), female breast (174), uterus, including cervix, corpus, and other unspecified parts (179, 180 and 182), lymphatic and hematopoietic tissue (200-208), prostate (185), bladder and other genitourinary organs (183, 184, 186-189), and other malignant neoplasms (remainder of codes between 140 and 208 not mentioned above—see HCA, 1994 edition).

Table 1: Estimated Annual Deaths from Malignant Neoplasms, the Americas and Subregions, 1960-1964, 1985-1989

	TOTAL	MALES	FEMALES
Americas			
1960-1964	520.000	270.000	250.000
1985-1989	900.000	470.000	430.000
North America			
1960-1964	315.000	170.000	145.000
1985-1989	540.000	290.000	250.000
Latin America and the Caribbean			
1960-1964	205.000	100.000	105.000
1985-1989	360.000	180.000	180.000

The classification used would appear to be sufficiently precise and comprehensive, given the low percentages in the category "other malignant neoplasms" for almost all the countries in 1990.

Among females, the predominant cancers vary by country. In Argentina, Belize, Brazil, Canada, Colombia, Costa Rica, Chile, Ecuador, El Salvador, Peru, Puerto Rico, and Uruguay the relative importance of malignant neoplasms of the digestive system (stomach, colon and others) is greater than the total of malignant neoplasms of the breast and uterus. In Cuba, Mexico, the United States of America, and Venezuela, the percentages are similar, while in Nicaragua, Panama, Paraguay, Suriname, and Trinidad Tobago malignant neoplasms of the breast and uterus are clearly predominant.

The fact that large numbers of women in Canada, Cuba, and the United States of America have taken up the habit of smoking in recent decades is reflected in the relative importance of malignant neoplasms of the trachea, bronchus and lung, which in these countries accounted for as much as 18%, 15%, and 21%, respectively, of all tumors circa 1990—an increase with respect to 1980. This increase in malignant neoplasms related to smoking in women has been observed in almost all the other countries as well.

In men, the most common site of malignancy is the digestive system, except in Canada, Cuba, the United States of America, and Uruguay, where tumors of the respiratory organs (especially the lungs) are predominant. Malignant neoplasms of the prostate are relatively frequent in all the countries (except Paraguay), with values generally ranging between 8% and 12%, although they are much higher in some

countries: Cuba (17%), Panama (14%), Puerto Rico (16%), Suriname (20%) and Trinidad and Tobago (27%).

With regard to specific sites that are of importance in individual countries, malignant neoplasm of the stomach is particularly common in Belize, Brazil, Colombia, Costa Rica, and Chile, Ecuador, El Salvador, Nicaragua, Panama, Paraguay, Peru, and Venezuela, especially among males, accounting for more than 15% of all deaths from malignant neoplasms in general and up to 30% in some countries (Belize, Costa Rica). Tumors of the digestive system account for 50% or more of total deaths in Belize, Costa Rica, Chile, and Ecuador.

1.4 *Accidents and Violence*

At the world level, in terms of a single measure that includes both mortality and disability due to accidents and violence, external causes account for 15.3% of all years of life lost through premature death and disability resulting from all types of causes among males. Among females the proportion is 8.2%. In Latin America and the Caribbean the figure for males is 20.5%, while for females it is almost equal to the world figure—8.1% (see *World Development Report*, World Bank, 1993).

Despite the growing importance and magnitude of the problem of violence and accidents, the phenomenon is not fully understood owing to its multiple dimensions and consequences.

The analysis presented here will look basically at data on deaths, which are the aspect of the problem about which the most information is known and recorded. The intent in limiting the analysis to an examination of mortality data is not to minimize the importance of non-fatal violence, the sequelae of which, whether physical or psychological, can have a more significant impact than mortality. This is true, for example, of injuries resulting from fires and burns, falls involving the elderly, abusive punishment of children, violence against women, explosions, terrorist acts, indiscriminate use of force by public officials, natural disasters, armed conflict, accidents (especially occupational and transport accidents), mass violence involving innocent bystanders, and other types of violence. All these types of violence and others lead to individual and collective situations that not only have important implications for the persons involved, but, from the standpoint of public health, have an impact on health services that is greater than data on registered deaths might suggest. The scarcity of information on the aforementioned problems and on the morbidity associated with violence, however, makes it difficult to present a more comprehensive view of the phenomenon.

In many countries, proportional mortality from these causes has more than doubled, notably in Colombia and El Salvador. In these two countries the proportion

was over 20% in 1990, and in El Salvador it reached almost one third during the early 1980s. There are other countries and territories in which external causes are of growing importance and recent values have been over 10%. These include: Bahamas, Belize, Brazil, Caiman Islands, Costa Rica, Cuba, Chile, Ecuador, French Guiana, Guadeloupe, Guatemala, Honduras, Mexico, Nicaragua, Panama, Suriname, and Venezuela.

Mortality from violence varies considerably by sex and age. The annex presents adjusted rates for males and females for the period 1985-1989 from 23 countries—which account for 97% of the population of the Americas—for which data were available on estimated mortality rates by sex and group of causes. No single trend can be identified for all the countries of the Region because, as with other causes, different patterns are noted over time, both among males and females.

Of the countries listed in the Annex, only three (Canada, Jamaica, and the United States of America) show a clear downward trend for both sexes compared to the figures for earlier periods (see HCA, 1994 edition). These are also the countries that, with some exceptions, have had the lowest rates for both sexes during the entire period examined, and Jamaica is the country with the lowest recent rates. In some countries various kinds of internal violence (guerrilla warfare and drug-related terrorism in Colombia, internal strife in El Salvador and Guatemala) have had a substantial impact on mortality, especially among males. In Colombia, for example, whereas the death rate among males increased from 188 to 237 per 100,000 between 1980 and 1984 (an increase of almost 30% in an already high rate), among females it rose from 37.5 to 41.1 (a 10% increase in a fairly low rate). In El Salvador, which had the highest registered and estimated rate in the early 1980s, male mortality tripled during the same period, reaching a level unprecedented in the Region: 523.8 per 100,000 (an almost 250-point increase over the figure for 1960-1964), whereas female mortality rose 35 points, doubling its earlier value.

If values of 100 for males and 40 for females are considered the thresholds for defining high mortality (adjusted rates per 100,000), by around 1990 six countries were registering high female mortality: Brazil (44), Colombia (41), Cuba (45), Ecuador (45), El Salvador (49), and Nicaragua (54). Ten countries showed values of over 100 for males: Brazil (127), Chile (133), Ecuador (133), Mexico (170), Nicaragua (133), Panama (105), Puerto Rico (106), Venezuela (126), and the two countries with especially high male mortality, Colombia and El Salvador, where the rates were 237 and 283 per 100,000, respectively. Excluding from consideration the internal phenomena that have led to these spectacular increases in mortality, particularly among males in some years, in all but the three aforementioned countries—Canada, Jamaica, and the United States of America—the level of mortality from external causes has remained the same or increased. Some countries, including Brazil, Chile, Colombia, Ecuador, El Salvador,

Guatemala, Honduras, Mexico, Nicaragua, Puerto Rico, and Venezuela, have recorded high levels of male mortality for the past 30 years.

Particularly noteworthy are the high rates that are being or have been registered among males aged 15-64 in Colombia, El Salvador, Guatemala, and Nicaragua, countries that are experiencing or have experienced internal turmoil, which explains the high proportion of violent deaths due to homicide or violent conflicts in these age groups. For all ages and time periods, mortality from external causes is consistently higher among males than females. The male/female ratio (quotient of the rates) is lowest in the under-1 age group and rises in subsequent age groups, reaching a maximum in the group aged 15-44 and then falling off among those aged 45-64 and 65 and over, although the rate is always much higher among males (see HCA, 1994 edition).

While the foregoing paragraphs examined mortality from the group of external causes as a whole, those that follow will analyze the behavior and trends of specific external causes. To that end, the various causes have been grouped into four major subgroups:

- accidental injuries:
  - accidents of all types (except motor vehicle traffic accidents);
  - motor vehicle traffic accidents;
- purposely inflicted injuries:
  - suicide and self-inflicted injuries;
  - homicide and injuries resulting from legal interventions and operations of war.

An analysis of proportional mortality by type of external cause for the majority of countries in the Region, circa 1980 and 1990, according to the above classification (see HCA, 1994 edition), confirms that the various causes show no uniform pattern among the countries. However, there are some associations. The high values of some age-adjusted and age-specific rates in countries such as El Salvador and Colombia have already been noted above. These figures are associated with increases in the proportion of deaths from homicide, in some cases to over 40% for both periods and in the case of Colombia to over 65% in 1990. A similar trend was observed in Nicaragua during the years of internal conflict in that country and in Panama in 1989 as a result of the armed intervention at the end of that year. The category "accidents of all types (excluding motor vehicle traffic accidents)" is unquestionably the category into which the largest

number of accidents fall, except in certain countries and periods. In several countries accidents from this category account for the absolute majority of all deaths from external causes. The category comprises a wide variety of accidents (drowning and submersion, falls, poisoning, blows, explosions, fire, electric shock, irradiation, natural disasters, accidents associated with surgery and medical care), which should be the subject of studies, analysis, and special prevention campaigns, since in many countries with high accident and violence rates the high rate is not explained by the three specific types of causes (suicide, homicide, and transport accidents) but by the large number of "other accidents."

Generally speaking, the quality of mortality data, even in the most developed countries, is variable, and this is particularly true of data concerning suicide. In many countries, owing to religious biases or cultural habits there is a tendency to classify suicide deaths as unintentional or to indicate that it is not known whether the death was intentional or not. Suicide deaths may also be classified as deaths due to heart problems, thus averting the need to conduct an autopsy to determine the cause.

With some exceptions, particularly in the case of those countries in which the homicide rate increased significantly during the 1980s, the proportional importance of suicide among the external causes has increased. Of the 24 countries for which information is available for the period around 1990, in five suicide accounted for 20% or more of all deaths from external causes: Suriname (31%), Trinidad and Tobago (29%), Cuba (27%), Canada (26%), and the United States of America (20%). In another seven countries—Argentina, Barbados, Costa Rica, Chile, El Salvador, Puerto Rico, and Uruguay—the proportion was between 10% and 20%. The situation by age and sex differs markedly between countries, although the number of suicides is always higher among males.

With respect to "homicides and injuries resulting from legal interventions and operations of war," this is the highest-impact group of causes, both because of their public visibility and their association with various development-related issues, including urbanization, drug trafficking and use, unemployment, racial and ethnic clashes, changes in family structure, armed conflicts. With very few exceptions, this group accounts for over 10%—over 20% in many countries—of all mortality from external causes. Taking into account that the male death rate from all types of accidents and violence has tended to increase in the Region and that this type of external cause is highly concentrated in the male population, it can be assumed that, despite underreporting of deaths in many countries, the real specific death rate from homicide is rising. It is in Colombia that this phenomenon has escalated the most. During the period 1987-1992 the number of reported deaths attributed to homicide totaled almost 130,000. The homicide mortality rate doubled in three years, climbing from 36.1 per 100,000 population in 1987 to 72.8 in 1990 and then continued to rise to 81.2 in 1991 and 86 in 1992. Homicide moved

from ninth place among the leading causes of death in the 1960s to fourth place in the 1970s and to first place in the late 1980s, with the problem becoming increasingly severe among younger population groups. The problem of violence is particularly acute in certain cities; in Medellín the rate in 1990 was 2.8 per 1,000 population. In Brazil, another country for which data disaggregated by city are available, there has been a steady rise in the number of homicides among males. Between 1983 and 1987 the registered rates per 100,000 population increased from 53 to 68 in Recife, from 17 to 43 in Rio de Janeiro, and from 53 to 64 in São Paulo.

One aspect of the problem for which considerable global information is available pertains to the consequences of armed conflict in Central America. It is estimated that 2.5 million people have been displaced as a result of such conflicts, 60% (1.5 million) of whom are children (100,000 of them orphans); 316,500 people have been officially registered as refugees. For Nicaragua alone, the number of children killed, wounded, or maimed as a consequence of war has been estimated at 7,200.

Generally speaking, "motor vehicle accidents" are the most frequent specific cause of death among all the external causes. The exceptions are those countries in which homicide has increased as a result of internal conflicts. As with homicide, traffic accidents kill many more males than females. By age, the greatest proportion of deaths from this cause is concentrated in the 15-44 age group, which accounts for more than 50% of the deaths. The picture with regard to traffic accidents changes markedly when the number of deaths from this cause is examined in light of the number of motor vehicles in a country (see HCA, 1994 edition). The death rate per 100,000 vehicles is intended to be an estimation of risk, although it would be a better indicator if the denominator were the distance traveled by the vehicles; however, that information is available only for Canada and the United States of America. The differences in the rates are sizable, the gap being as large as 25 to 1 in the case of Ecuador, where the rate is 555, and Canada, where it is 23 (according to information from the late 1980s, which is the latest information available). Of the 25 countries, 14 have rates of over 100, which is almost 5 times the lowest rate. There is a clear negative correlation between the number of vehicles per person and the rate: the greater the availability of vehicles the lower the rate. Hence, the two most developed countries in the Region, Canada and the United States of America, which have the greatest availability of vehicles, have rates that are the lowest and that are very similar—23 and 25, respectively. In contrast, the countries with fewer than 50 vehicles per 1,000 population, such as Belize, Colombia, Cuba, the Dominican Republic, Ecuador, El Salvador, and Nicaragua, have rates of over 300, which means that the relative risk in these countries is more than 15 times higher than in Canada and the United States of America. Like other indicators and unlike what might be expected, mortality due to motor vehicle accidents measured against the number of vehicles, is closely linked to the social, economic, political and cultural development of the countries in the Region.

Urbanization can be considered the phenomenon most closely associated with violence in recent years, and this is true not just of the Americas. One of the distinguishing features of this Region—in particular Latin America—is the tremendous growth of the urban population combined with the expansion of the large cities (see the chapter on population). With very few exceptions, accidents and violence of all types are more frequent in cities than in rural areas. In addition to the fact that mortality from these causes is higher in urban areas—which reveals only part of the problem—acts of violence and related phenomena are more common in cities.

2. Morbidity Trends

Morbidity shows a varied pattern: malaria remains a problem; the incidence of tuberculosis has begun to rise after decades of decline; poliomyelitis is on the verge of being eradicated; major outbreaks of measles have occurred in recent years but diminished in 1992; the cholera epidemic continues, with cases reported in more countries in 1993 than in 1992 and 1991, but with a lower total number of cases and lower case fatality; intestinal diseases have declined substantially in several countries and, in particular, case-fatality rates from diarrheal diseases among children have decreased; the AIDS pandemic continues, with an increase in the estimated number of HIV-infected persons; the prevalence of malignant neoplasms continues to increase, especially in countries with older populations; the incidence of diseases transmitted by animals is declining, both among humans and animals; some venereal diseases are increasing; certain nutritional deficiencies persist, while infections caused by unsafe food handling or preparation have decreased, thanks in part to measures taken to combat the cholera epidemic.

The cholera epidemic began in January 1991 in Peru and later spread to 15 more countries in the Region of the Americas, producing a total of almost 400,000 cases and 4,000 deaths, with a case-fatality rate of 1%. In 1992 the epidemic continued in the same countries and spread to another 5. The total number of cases (354,000) decreased compared to 1991, as did mortality (2,440 deaths) and the case-fatality rate (0.7%). At the beginning of 1993 the first cases were detected in Paraguay; the total number of cases reported that year was 208,000, with 2,440 deaths. The case-fatality rate has risen, reaching 1.1%. As of 16 June 1994, a total of 76,000 cases, with 618 deaths (case-fatality rate of 0.8%), had been reported in 14 countries.

The cholera epidemic has affected all the countries on the North and South American continents, except Uruguay. The Caribbean countries have remained unaffected. The largest number of cases during the period 1991-1993 was reported by Peru, which accounted for slightly over 60% of the total cases in the Region. That country, together with Bolivia, Brazil, Colombia, Ecuador, and Guatemala, accounted

for 95% of all cases reported. Thus far in 1994 Brazil has had the largest number of cases, with almost 50% of the total of cases reported in the Region.

The most intensely affected countries reported the disease in all their departments or provinces, although certain areas—such as Lima and Guayaquil—suffered especially heavy or prolonged outbreaks. In many countries, rural areas were just as affected as urban areas, and in the case of Venezuela 35% of the cases occurred among indigenous populations. Although the numbers of cases and areas affected in 1992 were high, the disease spread at a slower rate, especially during the second half of the year. This was due to prevention, reporting, and control measures and to the receptive and cautious attitude of the population living in the most heavily affected areas, especially with respect to consumption of beverages and food sold in the streets, as well as to better handling of food at home, in particular fresh vegetables. This is confirmed by data from 1993 and 1994.

With respect to morbidity from diarrheal diseases, Panama, which reported increases in diarrheal episodes from 1986 to 1990, reported a smaller number of cases in 1991 and 1992. In Mexico reported cases of diarrheal disease decreased from 3.2 million in 1991 to 2.5 million in 1992. Argentina, Colombia, and Honduras showed similar trends. In Chile, where intestinal infectious diseases remained endemic up to 1990 (a fact reflected in the trends for typhoid fever and hepatitis A), in response to the cholera emergency, prevention and control measures—which are the same for all intestinal diseases—were introduced at the institutional and population levels. As a result, the incidence of typhoid fever and hepatitis decreased 73.5% and 50%, respectively, between 1990 and 1992. Cases of hepatitis A in Costa Rica totaled 2,514 in 1990, 1,265 in 1991, and 626 in 1992. In Panama, as of week 35 of 1992, the number of cases of hepatitis A had decreased by a third with respect to 1991. In Uruguay, which has remained cholera-free, in the city of Montevideo, the annual number of cases of hepatitis A, after climbing to 3,000 in 1989 and 4,500 in 1990, fell to 1,500 in 1991 and to 600 in 1992.

Thanks in large measure to the efforts of the Expanded Program on Immunization, poliomyelitis is on the verge of being eradicated from the Americas. For the first time in the history of the American hemisphere, three entire years have elapsed without a single reported case of poliomyelitis caused by wild poliovirus. The last confirmed case occurred in August 1991. The attainment of this goal is the result of years of hard work by health workers in the various countries. Despite the success achieved to date, however, considerable effort will still be required in the final and most difficult phase in order to permanently to eradicate poliomyelitis.

Notable advances have been made in the sphere of vaccine-preventable diseases. Canada, Cuba, and the countries of the English-speaking Caribbean, for example,

obtained spectacular results with their campaigns against measles. Brazil conducted the most extensive campaign, vaccinating 50 million of children under 15 years of age in 1992, while Chile vaccinated 4 million in that same age group. Mexico—after a major epidemic in 1990, during which 84,000 cases were recorded—had 5,000 cases in 1991 and only 734 cases in 1992.

In several countries the measles situation remains precarious. Bolivia registered a rate of 64 per 100,000 population in 1992, the highest in recent years. The disease also increased in Ecuador. In Haiti, as one of the sequelae of the current political situation, which has made it impossible to implement the various phases of the EPI, a measles epidemic spread throughout the country. In May 1991 the countries of the English-speaking Caribbean conducted mass vaccination campaigns, covering more than 90% of all children between 9 months and 14 years of age; subsequent surveillance has failed to detect a single reported case in those countries in over two years. In Chile only 2 cases, both imported, have occurred since that country's vaccination campaign, and in Brazil fewer than 100 cases have been confirmed by laboratory analysis since the campaign. In Peru, following the epidemic of 1991, almost 70% of the children between 9 months and 15 years of age were immunized in late 1992 in order to halt the epidemic. The presidents of Central America, in December 1991, established the goal of eliminating measles by 1997, and mass vaccination campaigns to immunize all children aged 9 months-14 years were completed in April 1993, with coverage levels of over 80%. The Dominican Republic also concluded a vaccination campaign in April 1993, as did Argentina and Colombia in May 1993 and Mexico in November 1993.

The strategy employed in Latin America and the Caribbean is to carry out large-scale vaccination campaigns, targeting children between nine months and 14 years of age, regardless of their previous immunization status or history of the disease. The initial campaign is complemented by subsequent campaigns in order to achieve high immunization coverage in each new cohort of children. The critical element for achieving elimination will be the establishment of aggressive surveillance systems that will make it possible to rapidly introduce adjustments, focusing elimination efforts on pockets of transmission while also determining mechanisms of transmission and detecting imported cases. In 1992 the Region of the Americas reported the lowest number of cases ever and the highest levels of immunization coverage, with almost 4 out of 5 districts reporting coverage of more than 70% among children under one year of age. Various problems exist: several countries have not achieved immunization coverage of over 80%, many cases are not adequately investigated, the blood tests necessary for correct classification of cases are not routinely carried out, the laboratory network is not prepared to meet new needs, and the available technology cannot be easily adapted for use in the field. While these factors represent major obstacles to the achievement of the goal of measles eradication, there is still reason for optimism that the Region of Americas will lead the world in eradicating measles, as it has done with polio.

Thanks to vaccination with tetanus toxoid, the incidence of neonatal tetanus has declined, and most of the 478 areas in Latin America identified as high-risk in 1988-1989 are now free from the disease.

After many years as one of the Region's major diseases, tuberculosis declined rapidly during the first half of the present century, both in terms of mortality and infection rates, especially in the most advanced countries. In the 1950s the introduction of antibiotics hastened this trend and led to major advances in the poorer countries. In both the research field and at the level of health services a premature victory was declared. A large number of hospitals that had been devoted exclusively to treating the disease were closed. Then, in mid-1980s the number of tuberculosis infections, cases, and deaths began to rise again throughout the world. WHO estimates that at present 1,700 million people, one third of the world population, are infected with *Mycobacterium tuberculosis*, although most of them are asymptomatic carriers. In 1992 the annual number of new cases was estimated at 8.4 million, 96% of which were occurring in developing countries. The number of deaths was calculated at slightly over 3 million, making tuberculosis the disease, caused by a single agent, that produces the most deaths. The highest rates are recorded among young adults around 30 years of age. This resurgence can be attributed mainly to two factors: first, multidrug resistance (MDR) and second, the increase in infection with HIV, the virus that causes AIDS, which weakens the immune system, facilitating infection. As a result, tuberculosis is once again becoming the problem it was in the pre-antibiotic era.

In the United States of America, where current estimates put the number of infected people at 15 million, after a reduction in the number of cases over several decades, the number began to rise in 1985. To date, 36 states have reported cases of MDR tuberculosis. In New York, one third of the tuberculosis cases have shown resistance to one or more drugs, and the disease is the principal cause of death of people infected with AIDS. It is has been found that 20% of patients fail to complete a full course of drug therapy. Unlike other times when the disease cut across all socioeconomic classes, it is presently concentrated chiefly among the most unprotected groups, where the deterioration in living conditions and the various complications arising out of current systems of treatment have created favorable conditions for transmission, especially of the most resistant strains. In Panama, after a substantial decline from 1978 to 1984, the incidence of tuberculosis rose between 1985 and 1992, climbing from 18 to 33 per 100,000 population, although mortality and case fatality declined. In Bolivia the incidence doubled, rising from a rate of 77 to 150 per 100,000 during the period 1982-1992. In Brazil the rate declined steadily between 1982 and 1991, falling from 63 to 36 per 100,000 population. In Peru the rate has remained high, at 110 per 100,000 population. In Ecuador the incidence has shown an upward trend and currently stands at 52 per 100,000, although mortality has declined. In Venezuela the incidence has remained stable in recent years, at around 25 per 100,000. In Mexico, the number of

reported cases has also held steady at around 15,000 in recent years; it is estimated that 10% of these cases are associated with AIDS. Cuba, after achieving the lowest incidence in its history in 1990 (5.1 per 100,000 population, compared to 31 in 1970), had an estimated rate of 7.2 per 100,000 in 1993. In Argentina, the incidence rose between 1991 and 1992 from 15 to 26 per 100,000; the number of cases in the Dominican Republic increased from 1,573 in 1991 to 3,931 in 1993; and in Trinidad and Tobago the incidence increased from 9 to 11 per 100,000 between 1990 and 1992.

With regard to malaria, at the start of the 1990s it was estimated that 40% of the population of the Region of the Americas was living in areas with ecological conditions propitious malaria transmission. In 1990, 1991, and 1992 a total of 1,044,000, 1,230,000, and 1,186,000 microscopically confirmed cases were reported, signifying an increase in morbidity in 1991 and a reduction in 1992. The estimated rate rose from 375 cases per 100,000 population in 1990 to 438 in 1991 and then declined to 409 in 1992. Between 1974 and 1992 the annual incidence of malaria in the Region rose steadily; 1992 was the first year in which the situation of the disease showed slight improvement. There are 21 countries in the Region with evidence of malaria transmission. In these countries a total of 207 million people live in originally malarious areas and are potentially exposed to transmission. The annual parasite index (API) in 1992 for these countries was 5.7 per 1,000 exposed population, which represents a reduction with respect to 1991, when the API was 6.2 per 1,000 population in the malarious areas. In the countries or territories of the Region without evidence of transmission 1,144 cases were reported in 1991 and 1,263 in 1992. The vast majority of these cases were imported. Of the total malaria cases diagnosed in 1990, 1991, and 1992 in the various areas of the Americas, the largest proportion occurred in Brazil, followed by the Andean Area, Central America, Panama, and Belize. The risk of contracting malaria, as expressed by the API, was highest in Guyana and French Guiana, which had an API of 38.5 per 1,000 population in the malarious area, followed by Brazil, with 9.5; Central America, Panama, and Belize, with 8.5; and the Andean area, with 5.8 per 1,000 exposed population. The Caribbean, primarily Haiti, is the area with the highest proportion of cases caused by *Plasmodium falciparum*, followed by Guyana, French Guiana, and Brazil.

The stability of the highest reported figure—around one million cases—in recent years raises some questions, which the programs for malaria prevention and control are seeking to answer in the analysis and review of the structure and strategy for integrating malaria control into the local health services. The information available from the countries suggests that the malaria control programs may have reached their peak operating capacity and are unable, under current infrastructure conditions (lack of material and human resources), to meet the need for microscopic diagnosis in order to ensure complete coverage of the areas with evidence of transmission.

Dengue has increased considerably in the Americas in recent years. Major epidemics caused by serotypes 2 and 3 occurred in the Caribbean and Venezuela in the 1960s. In the early and mid-1970s, Colombia experienced explosive epidemic outbreaks caused by serotypes 2 and 3, during which it was estimated that 1.5 million people suffered the infection. Early in 1977 serotype 1 of the dengue virus was introduced into Jamaica, where it caused an extensive outbreak. Subsequently, all the islands of the Caribbean were affected by the virus. In South America, epidemics have occurred in Colombia, French Guiana, and Venezuela, while in Central America, Honduras, El Salvador, Guatemala, and Belize have reported epidemics. The disease was introduced into Mexico in 1978, and in 1980 it spread to Texas, in the United States of America, where for the first time since 1945 indigenous cases were confirmed. Between 1977 and 1980 the countries reported 700,000 cases.

During the 1980s, there was a marked increase in the geographic spread of dengue. In 1982, an epidemic caused by serotypes 1 and 4 occurred in northern Brazil; in 1986 a major outbreak caused by dengue-1 struck the city of Rio de Janeiro and the virus subsequently spread to several other Brazilian states. Four countries without any prior history of reported cases experienced serious epidemics: Bolivia (1987), Ecuador (1988), Paraguay (1988), and Peru (1990). The number of cases of dengue reported by the countries totaled 48,000 in 1988, 89,000 in 1989, 116,000 in 1990, 156,000 in 1991 and 102,000 in 1992. In 1990 and 1991 Brazil reported the largest total number of cases, 138,000, followed Mexico with 20,000, Colombia and Puerto Rico with 19,000, and Guatemala and Venezuela with 17,000. During those years only a handful of countries and territories did not report cases: Argentina, Bermuda, Bolivia, Costa Rica, Cuba, Haiti, Panama, Paraguay, and Uruguay. In October and November 1993, Costa Rica and Panama detected indigenous transmission of dengue in their territories. The resurgence of the disease in these two countries occurred after more than 40 dengue-free years in Costa Rica and more than 50 years in the case of Panama. It is noteworthy that the epidemic in Costa Rica was caused by dengue-1, while that of Panama was caused by dengue-2, since it would have been expected that these neighboring countries would be affected by the same serotype of the virus.

At present, in 1994, it is estimated that there may be between 2.5 million and 3 million asymptomatic carriers of the human immunodeficiency virus (HIV) in the Americas. Up to 1988 the cumulative total of AIDS cases was 124,000; 53,000 cases were reported in 1989, 62,000 in 1990, 73,000 in 1991, 85,000 in 1992 and 125,000 in 1993, for a cumulative total, at the end of 1993, of 522,000 cases since the beginning of the epidemic. Cases have been reported in all 46 countries and territories of the Americas, 80% of which have occurred in the United States of America, which has registered a cumulative total of 412,000 cases (including 12,000 in Puerto Rico). The countries with the next highest number of cases are Brazil, with slightly over 49,000 cases, and Mexico, with 18,000. Of all those who have contracted AIDS in the

Americas, by the end of 1993 a total of 271,000 had died—228,000 in the United States of America (7,000 in Puerto Rico making AIDS the third leading cause of death for men in 1992 at 7.2% of all deaths among males), 20,000 in Brazil, and 10,000 in Mexico. During the period 1989-1993, the greatest increases in annual incidence were registered in Mexico, the Central American Isthmus, and the Southern Cone; in the latter subregion the incidence rose some 200% in those years. Brazil and the Andean Area also experienced substantial growth in the incidence of the disease. The largest increases were recorded in the countries most recently affected by the epidemic, and still greater increases are anticipated in those countries in the next few years.

In North America 57% of the cases have occurred among homosexual or bisexual males and more than one fourth among male intravenous drug users. In the non-Latin Caribbean almost 80% of cases involve heterosexual transmission, and as a result the frequency of transmission from mother to child has increased. In Latin America the proportion of cases among homosexual and bisexual men ranges from 14% in the Latin Caribbean to 68% in the Andean Area. Heterosexual transmission is on the rise and now accounts for 75% of cases in the Latin Caribbean, 30% in the Andean Area, and more than 20% in Brazil and Mexico. It is estimated that between 200,000 and 300,000 women are infected with HIV, 150,000 of whom live in Latin America and the Caribbean. A clear indicator of the growing importance of HIV infection among females is the fact that in Central America, the number of AIDS cases in women has increased fortyfold in the past five years.

Given the leprosy's potential for producing serious disabilities and the social stigma associated with it, this disease constitutes a more significant public health problem than the prevalence figures indicate. There are approximately 300,000 cases of leprosy in the Region, with a rate of 4.2 cases per 10,000 population. In 1991, 30,000 new cases were detected. Brazil accounts for 80% of the cases and is also the country in which most new cases are detected. Colombia, Mexico, and Venezuela each have more than 10,000 cases. Peru reported a substantial increase in 1992, with more than 10,000 cases. Leprosy can be considered a public health problem in 21 countries of the Region. It is feasible, through multidrug therapy (MDT) to attain the goal of eliminating leprosy (less than 1 case per 10,000 population), but unfortunately, the Region of the Americas has been slower to adopt MDT than other regions of the world.

With regard to rabies, before the Regional Program for the Elimination of Urban Rabies was launched, an average of 350 human cases occurred annually. Since the Program's inception the number of cases has declined. The number of cases reported in 1991 and 1992 totaled 225 and 223, respectively. Between 1989 and 1992, only four capital cities reported cases of rabies, and of the 414 cities targeted by the Program, only 50 had cases. Since 1990 there has also been a marked decrease in the number of canine cases of rabies, from 11,700 in 1990 to 5,700 in 1992. In late 1992 only 182 of the 414

cities reported one or more dogs with rabies. The countries that have not yet succeeded in interrupting the epidemiological cycle of canine rabies are Bolivia, Ecuador, El Salvador, Guatemala, Haiti, Paraguay, and Peru. Of particular note is the 31% increase in human rabies cases in Ecuador in 1992, especially in Guayaquil.

Major advances have been made in the control of foot-and-mouth disease in recent years. The disease has been eradicated in Chile, a disease-free area has been established along the Colombia-Panama border, large-scale epidemics have ceased, and progress was made in controlling the disease in extensive areas. In areas in which control programs have been carried out, the annual incidence has declined from 13-20 animals affected per 1,000 head to around 1 per 1,000 in recent years. General morbidity declined from 2%-3% to 0.5%. Uruguay has reported no cases since late 1991 and has applied for certification as a country free from foot-and-mouth disease through vaccination. The originally disease-free areas have been maintained: North America, Central America and Panama, the Caribbean, French Guiana, Guyana, and Suriname.

Jungle yellow fever persists, with six countries reporting cases during the 1980s: Bolivia, Brazil, Colombia, Ecuador, Peru, and Venezuela. There were significant increases in the number of reported cases in the 1960s, 1970s, and 1980s (905, 1,212, and 1,624 cases, respectively). During the 1960s Brazil accounted for almost 50% of the cases; in the 1970s Bolivia, Colombia, and Peru contributed 80% of the cases, while in the 1980s Bolivia and Peru reported 83% of the cases. Over the three-year period 1988-1990 Bolivia reported 160 cases. During the same period Brazil had 32; Colombia, 23; Ecuador, 14; and Peru, 341. Venezuela reported no cases. In 1990 one case was reported, in French Guiana. There is a risk of yellow fever in Paraguay where the vector infestation index ranges from 10% to 20% in some areas. In addition, there is a wild vector, *Haemagogus*, whose indexes cannot be calculated.

Chagas' disease has decreased although it continues to be a problem in Bolivia, where 55% of the population is at risk and there are an estimated 1.2 million cases. In Brazil the number of people afflicted with Chagas' disease is estimated at 5 million. Uruguay reports that transmission of Chagas' disease to human beings has been interrupted.

Cuba is experiencing a very unusual and serious epidemic of optic neuropathy, which began in the second half of 1991. Patients complain of weight loss, blurred vision, sensitivity to light, and gradual loss of visual acuity over a period of 1-4 weeks. According to Cuban experts, the severity, magnitude, manifestations, and spread of the disease are different from anything described in the existing literature. By the end of July 1992, 168 cases had been reported. The total had risen to 472 by December of the same year. During the first months of 1993 the number of cases increased exponentially and by 30 April 1993 some 26,000 cases had been detected, making immediate attention

to the problem essential. The cumulative total of cases for the period between July 1991 and January 1994 was 51,000, yielding a national cumulative incidence of 461 per 100,000 population, with a sex-specific rate of 567 in men and 368 in women. No fatalities have been reported, and in most of the patients the disease has resolved totally or partially following parenteral treatment with vitamins A and B complex. The etiology of the neuropathy epidemic seems to be related to several factors, including nutritional deficiencies and a possible neurotoxic agent.

Another disease that has recently been detected in the Region is pulmonary infection syndrome caused by hantavirus. In June 1993 it was determined that a recently discovered hantavirus was the etiologic agent of an outbreak of serious respiratory disease in the southwestern region of the United States of America. The disease is characterized by a prodromal period marked by fever, myalgia, and variable respiratory symptoms, followed by sudden onset of acute respiratory difficulty; other symptoms include headache and gastrointestinal disorders. As of 31 December 1993 there had been 53 cases, 32 (60%) of which had died.

Building on the triumph in the campaign against smallpox, and in recent years in the effort to eradicate poliomyelitis, a whole series of plans and programs—regional, subregional, and national—have been developed, with the goal of eradicating, eliminating, or controlling a variety of infections. In many cases, attaining these goals will pose a major challenge, especially in view of the need for economic resources, which are not always readily available. Regional plans have been established for the elimination of leprosy (Mexico has proposed to eliminate the disease during 1993-1994, Honduras by 1997, and Suriname by the year 2000), vitamin A deficiency, and urban rabies (Uruguay is awaiting certification as a rabies-free country). Subregional plans also exist in the countries of the La Plata River basin for the eradication of foot-and-mouth disease. Mexico, like Peru and Honduras, is seeking to eliminate neonatal tetanus.

Since the coup d'etat in September 1991, Haiti is undergoing a grave political, economic, and social crisis, exacerbated by a trade embargo and deficient operation of public institutions. These factors have led to a deterioration in the already precarious situation of the country, which has the worst indicators in the Region. There have been major migratory movements, both through emigration to the United States of America (boat people) and through forced repatriation of large contingents of Haitians from the Dominican Republic. In a study conducted in 35 sentinel centers in 1991 and 1992, it was found that 50% of children under the age of 5 exhibited some degree of malnutrition (17% showed grade II or III malnutrition). The seroprevalence of AIDS in Haiti in 1992 was estimated at between 5% and 10% in urban areas and between 3% and 6% in rural and semirural areas. The incidence of tuberculosis is high, and epidemics of measles and rubella have occurred. EPI vaccination coverage among children under 1 has decreased, and the near paralyzation of the Ministry of Public Health has drastically reduced

activities in the area of maternal and child health. The national AIDS program has almost ceased to function since 1992. Basically, it is international agencies that have supported the humanitarian assistance program, providing external food aid to some 2 million people. As for health services, under the current circumstances the private and mixed subsectors (especially various NGOs) have become the principal providers of health services to the population.

3. Nutritional Status

Of the 20 countries for which information is available on low weight-for-age among children aged 0-4, the prevalence of malnutrition in the Region ranges from 0.8% in Chile (Sempé classification) to 38.5% in Guatemala (WHO classification). Values of under 10% were registered in Brazil, Chile, Costa Rica, Jamaica, Paraguay, Trinidad and Tobago, the United States of America, Uruguay, and Venezuela. Values of between 10% and 20% were recorded in Bolivia, Colombia, the Dominican Republic, Ecuador, El Salvador, Mexico, Nicaragua, and Peru. In Guatemala, Guyana, and Honduras the proportion was over 20%. These data correspond to the years during the second half of the 1980s and the early 1990s. Many of the data are not comparable, owing to different sampling methods and cut points for the definition of low weight-for-age.

A UNICEF study conducted in 1990 estimated the average prevalence of nutrition deficits in Latin America and Caribbean at 13.8% when calculated on the basis of weight-for-age, 27.7% based on the height-for-age indicator, and 1.3% based on weight-for-height.

The countries show an overall downward trend in malnutrition rates, although this trend is not uniform. The successes achieved in some of the countries can be largely attributed to the application of strategies such as the promotion of breast-feeding and correct weaning practices, appropriate feeding during acute episodes of diarrhea, nutritional education, and programs for immunization and the control of diarrheal and respiratory diseases. Such interventions have achieved the maximum benefits they can provide. It should be noted that in many of the countries in which malnutrition has been reduced to moderate levels, there continue to be tremendous differences, not revealed by measures of central tendency, among geographic regions and population strata. The implementation of effective nutrition monitoring systems facilitate the collection of disaggregated data, which will serve to identify depressed areas so that they can then be targeted by appropriate interventions.

In regard to deficiencies of micronutrients such as iron, iodine, and vitamin A, the information available is generally insufficient and corresponds only to some countries or regions of one country. Moreover, to a greater extent than malnutrition, these deficiencies are concentrated in certain geographical areas and population strata. In the

late 1980s and early 1990s, the prevalence of anemia found among pregnant women was 61% in Misiones, Argentina; 27.6% in Costa Rica; between 20% and 25% in Cuba; and, 13% in Asunción, Paraguay. The rates of anemia among preschool children were between 22% and 45% in subregions of Brazil, 18% in Chile, between 27% and 53% in subregions of Peru, 29.6% in Costa Rica, 23% in El Salvador, and 8% in Venezuela.

With respect to iodine deficiency, endemic goiter is considered a public health problem when it affects more than 10% of a population. Low urinary excretion of iodine is an indicator of deficiency of this micronutrient. Several studies of the prevalence of iodine and urinary excretion of iodine carried out among schoolchildren in 17 countries of the Region between 1983 and 1991 found the prevalence of goiter to be over 50% in Merida (Venezuela) and Chameza (Colombia), between 20% and 50% in Bolivia, Ecuador, El Salvador, Guatemala, Paraguay, Azuero (Panama), the mountains and jungle of Peru, and 4 regions of Brazil; and between 10% and 20% in Maranhão (Brazil), Calama and Santiago (Chile), Yopal (Colombia), Guanacaste (Costa Rica), and Panama. Values of under 10% were found in Cordoba (Argentina), Temuco (Chile), Puntarenas (Costa Rica), Honduras, Hidalgo (Mexico), Nicaragua, and Uruguay. These studies reveal that the prevalence may vary considerably from one area to the next within the same country, which confirms that in many cases the problem is restricted to certain regions.

As for vitamin A deficiencies, a public health problem is considered to exist when 10% or more of the population of children under the age of 5 shows low serum retinol levels (under 20 mcg/dl) or when 5% or more have deficient levels (under 10 mcg/dl). Vitamin A deficiency constitutes a public health problem in certain geographic areas of the Region, generally in economically deprived rural localities. According to national studies conducted in 9 countries of Latin America during the 1980s and early 1990s, only Costa Rica and Panama showed under 10% prevalence of low serum retinol levels among children. In Bolivia and Ecuador the prevalence was between 10% and 20%, and in five other countries, Colombia, El Salvador, Guatemala, Honduras, and Nicaragua, over 20% of the children examined had low serum retinol levels. Regional studies of Brazil, Mexico, and Peru found values of over 10% in all regions.

4. Disabilities

People with disabilities exist everywhere in the world and at all socioeconomic levels. The number of people with disabilities is high and increasing. The causes and consequences of disabilities vary; these variations are the result of different biological, sociocultural, and economic conditions. Many specific circumstances have a bearing on the living conditions of people with disabilities: ignorance, negligence, superstition, and fear are factors that throughout history have isolated people with disabilities and hindered or impeded their progress. The various provisions made and the activities carried out by

governments for the well-being of their citizens have also influenced both the causes and the consequences of disability. Present policies on disability are the result of events that, in many cases, occurred long ago, and they reflect the general living conditions and the social and economic policies of different time periods.

In recent years an attempt has been made to identify the risk factors for disability: genetic factors, acute or chronic disease, violence, sedentary lifestyle, smoking, incomplete education, cultural beliefs, lack of access to adequate health services, perinatal complications, accidental and purposely inflicted injuries, addiction to alcohol and drugs, nutritional problems, stress, the quality of the environment, unhealthy living conditions, harmful child-rearing practices.

Disability affects not only individuals but their families and communities. The social, economic, and public health dimensions of disability magnify the problem. One of the consequences is the demand for services. Another is the impact on legal, political, and cultural structures that are ill-equipped to meet the special needs of disabled people, who require interventions that will afford them equal opportunities and enable them to enjoy a better quality of life.

In a survey carried out by the Regional Rehabilitation Committee of Antioquia in the Colombian city of Medellín in 1990, it was found that the percentage of unemployment among the disabled was 29%, compared to 6% among non-disabled people. Moreover, 64% of the disabled had an uncertain economic situation or were dependent on others. In Peru, a study of the prevalence of disabilities, impairments, and handicaps conducted in 1993 found that 52% of the disabled were dependent on family assistance to cover their expenses; 33% worked; 6% were unemployed; 1.1% relied on assistance from charitable organizations; and 0.5% resorted to begging. In Honduras, a 1989 study found that 60.1% of the disabled population was unemployed. A health situation assessment carried out in 1990-1991 in the Caracas urban area revealed that 86.1% of the disabled were dependent on their families.

The records and statistical information on mortality and morbidity in the Region of the Americas generally do not make it possible to determine the prevalence of disabilities or the degree to which the demand for rehabilitation services is being met. Neither do they reveal much about the social status of the disabled. Population censuses and household surveys carried out in many countries of the Region have included some questions relating to disability, but they have yielded mainly demographic data, providing little information that would make it possible to assess the situation of the disabled for the purpose of developing programs to meet their needs. The low priority accorded the problem of disability in the developing countries probably explains the lack of reliable data that would make it possible to estimate its true magnitude. Moreover, it is difficult to draw any general conclusions about the situation, because the way in which disability

is perceived is closely related to environmental factors such as living conditions, cultural determinants, and individual and collective behaviors.

A resolution adopted in December 1993 by the General Assembly of United Nations at its 48th session and published under the title *The Standard Rules on the Equalization of Opportunities for Persons with Disabilities* makes a distinction between the concepts "disability" and "handicap." The term "disability" encompasses a wide variety of functional limitations and impediments. People may be disabled due to physical, intellectual, or sensory impairments or medical conditions or mental illness. Such impairments, conditions, or diseases may be permanent or temporary in nature. The term "handicap" refers to the loss or limitation of opportunities to take part in the life of the community under the same conditions as non-disabled persons. It describes the confrontation between the disabled person and his/her environment. This term is used to draw attention to the shortcomings of the environment and many of organized social activities—for example, dissemination of information, communication, and education—which make it difficult for people with disabilities to participate under equal conditions.

In 1994, in Colombia the National Institute for the Blind and Deaf estimated the percentage of people in the country with difficulty seeing and hearing at 1% and 2%. A partial study carried out in 28 municipalities in 1992 found that 40% of the disabled were unable to read or write. In Antioquia a study of the prevalence of disability carried out over the period 1992-1993 found the prevalence of impairments to be 24.2%, that of disabilities, 13.6%, and that of handicaps, 4.8%. In Peru, a study of the prevalence of impairments, disabilities, and handicaps was also conducted in 1993; the prevalence was 45.4% for impairments, 31.3% for disabilities, and 13.1% for handicaps. This data provided by Colombia and Peru marks a divergence from previous calculations, which put the prevalence of disability in the general population at between 7% and 10%.

More specific data show that for Antioquia impairments resulting from diseases of the nervous and sensory systems account for 48% of the total; 12% are due to osteomuscular diseases, 11% to diseases of the circulatory system, 5% to accidents and violence, and 4.5% to congenital anomalies. With regard to the services available to people who seek rehabilitation, the majority utilize services provided by government and social security institutions. However, most disabled persons are not covered by any type of insurance.

For other countries the data reported—which correspond to different years and are calculated according to methodologies that make comparison impossible—reveal the following:

- in Ecuador, in 1981 it was estimated that 13% of the population was affected by some type of disability (13% visual, 13.2% auditory, 9.4% speech, 32% mobility, 21% mental, and 11.4% other). The causes of these impediments were distributed as follows: disease 39%, accident 24%, congenital anomalies 21%, hereditary conditions 9%, and birth trauma 7%. In 1993 an interinstitutional commission, created in Ecuador in 1989, prepared the National Plan on Disabilities;

- in Mexico, the figures obtained by a national health survey in 1988 indicated that there were 1.5 million disabled persons in the country, although it is estimated that the true figure is several times higher. In 1989 the public health sector designed the first simplified rehabilitation model, which is being implemented in 10 states of the country. The total disabled population of these states numbers an estimated 250,000, 40% of which require first-level care. In addition, support activities have been strengthened in specialized non-hospital centers of the National System for Comprehensive Family Development, which in 1992 served slightly over 630,000 disabled people. The Mexican Social Security Institute (IMSS) reported having served close to 400,000 disabled persons in 1993;

- in Haiti, in 1983 it was estimated that there were some 800,000 disabled persons in the country, 10% of whom (80,000) suffered from visual impairments; of these, 16,000 were school-age children, but only 69 were attending school. Ten institutions, among them three general hospitals, provided specialized rehabilitation services;

- in Bolivia, the number of disabled persons has not been determined, nor has the total magnitude of the problem been assessed. There is a National Rehabilitation Bureau within the Ministry of Health and a National Bureau of Special Education, an agency of the Ministry of Education. There are also a series of institutes devoted to serving persons with specific disabilities: children with mental deficiencies, people with hearing and speech impairments, and blind persons. The country has no national policy on disability, but a national plan on rehabilitation is currently being developed;

- in Puerto Rico, a basic health survey carried out in 1988 found an impairment rate (impediments or defects) of 19 per 100 population among the general population and 53 per 100 among the population aged 65 and over. The rate by type of deficiency was 4.2% for sight impairments, 2.1% for hearing impairments, 1.2% for speech impairments, 1.1% for mental impairments, 2.5% for absence or loss of body parts, and 1% for paralysis. No major sex differences in the rates were noted, although they were generally lower among

females younger than 45 and higher among females older than 45. Sex differences did exist with regard to types of impairment; among females, absence or loss of body parts was more frequent, while mental and speech impairments were less frequent. The principal disability and rehabilitation programs are the program for children and adolescents with special health needs, the program on mental retardation, the program for emergency care of indigent patients, and the program for infants and toddlers with disabilities. The primary constraint facing these programs is the limited availability of personnel specialized in rehabilitation;

- in Argentina, accurate information on the prevalence of disabilities is not available, but it is estimated at 8.5% of the total population, which means that there are almost 3 million disabled people. The only source of information is the examinations conducted on military recruits, and the figures they yield suffer from an obvious age and sex bias;

- in Jamaica, the number of people with visual impairments was estimated at 720,000 in 1992;

- in Trinidad and Tobago, based on data from a survey conducted in 1980, for which an update is being prepared, it is estimated that 6% of the population is disabled. No disaggregated figures on the various types of disability are available;

- in Uruguay, according to a family health survey published in 1984, the prevalence of disabilities was 4 per 100 population, with no differences by sex. As is to be expected, the prevalence increases with age. With respect to causes, the survey revealed that more than half of all disabilities were due to disease, one fifth to congenital conditions, one tenth to accidents, and 7% to old age. By type, total blindness accounted for 13%, mental retardation for 14%, total deafness for 10%, paralysis for 9%, mental retardation for 7%, and congenital anomalies and missing members for 6% each; the remainder were types of disability associated with chronic diseases, old age, and other causes. An honorary commission on the disabled has been established by law and entrusted with the task of creating a comprehensive protection system for disabled people and preparing and evaluating national plans for the advancement, development, and rehabilitation of the disabled;

- in Cuba, in 1993, the number of people with visual, hearing, and mobility difficulties was 18,000, 15,000, and 41,000 respectively. Data on other types of disabilities are not available. The national disability program comprises three levels: community-based rehabilitation, hospital-based rehabilitation, and

a tertiary level made up of specialized institutes and hospitals. Special schools have been established for disabled children, and there are 24 homes for persons with physical and mental impairments;

- in Costa Rica, the number of people with some degree of disability in November 1993 was estimated at 310,000. Of that total, 23,000, 18,000, and 41,000, respectively, suffered from visual, hearing, and mobility impairments. Of the total estimated number of disabled persons, only 76,000 were officially registered as such. Policies on prevention (primary and secondary), rehabilitation, and special education have been formulated, but obstacles have been encountered in regard to mobilization of sufficient resources and registry of cases;

- in the United States of America, data from a national health survey in 1992 estimated the numbers of people with visual, hearing, speech, and mobility impairments at 8, 22.7, 2.8, and 15.5 million, respectively. The disabilities prevention program overseen by the Centers for Disease Control carries out activities aimed at preventing the causes of many primary disabilities and also seeks to prevent the secondary conditions that lead people with disabilities to become dependent and non-productive;

- in Canada, the Health and Activity Limitation Survey carried out in 1986-1987 estimated that 3.3 million people, 13.2% of the population, had some degree of disability. Of that number, 250,000 were living in health or geriatric institutions. The proportion of disability among children under 15 years was estimated at 6%. Two thirds of the disabled population aged 15 and over reported more than one type of disability, and nearly 45% of the respondents aged 65 and over reported some type of disability. Governmental policies and programs focus on eliminating the barriers that prevent the disabled from having equal access to facilities and opportunities.

The services provided by the health sector to the disabled in the Region are generally insufficient and have limited impact. Historically, these services have been organized in a tertiary care framework and have been geared almost exclusively toward those with physical disabilities. A PAHO study conducted in 1993 of a group of 4,821 hospitals belonging to the Latin American Network of Hospitals found that only 3.1% offered rehabilitation services. In the aforementioned survey in Peru, 13.1% of 840 disabled people studied and 19.8% of 364 handicapped persons had access to rehabilitation services; 81.2% of the disabled people and 76.9% of the handicapped did not have access to such services.

The coverage reported by some countries is extremely low. The Honduran Institute for the Training and Rehabilitation of the Disabled, for example, reported that an assessment carried out in 1991 determined that only 7% of the disabled population receives the medical rehabilitation it needs. In June 1993, in a study conducted with PAHO cooperation in 11 countries of the English-speaking Caribbean it was found that only 3.6% of the population that needed rehabilitation services had access to them.

There are some signs that positive steps are being taken to improve the services available to the disabled. Since the Region began promoting the implementation of local health systems, a trend in that direction has been noted, and in some countries of the Region, local health systems are already providing rehabilitation services. Examples include the local health systems of Manizales, Colombia; Barinas and Colón, Venezuela; San José de Ocoa, Dominican Republic; Chorrillos, Peru; and Estelí, Juigalpa, Granada, and Managua, Nicaragua.

CHAPTER II

IMPLEMENTATION OF PRIMARY HEALTH CARE

1. Health Education and Promotion

Health education has an ideal ally in the school system. In workshops and working meetings held in 1993 with those responsible for carrying out health education programs in the health sector, the participants concluded that there is a need to foster the development of a practical concept of health education as an ongoing social process that promotes reflection and analysis for the identification of health problems and needs; decisive actions that can favorably influence the behavior, attitudes, values, and practices of people to bring about improvements in individual and collective health; and community participation in health promotion.

The preliminary results of a survey of those responsible for health education programs and participation in the health sector in the countries of the Region indicate that 70% of the countries do not have training and development systems for personnel either in health education or community participation. According to the survey data, only a very few institutions offer short courses. There are three in medical schools or departments of medicine, two in education or pedagogy, three in public health, and two in nursing. Moreover, the survey results also indicated that all the Ministries of Health have some central agency with regulatory responsibilities in the two areas. In health education, the 20 countries that responded to the questionnaire had five units, four departments, three bureaus, three divisions, two administrations, two offices, and one program. In community participation, nine countries reported having no responsible agency, five countries have a unit, two have departments, two have administrations, one has a center, and one has an office.

There is a substantial gap between the stated policies to promote and support health education and reality, expressed in the actions, methods, and technologies employed by the various social and health institutions. Countries such as Argentina, Bolivia, Colombia, Costa Rica, and Mexico have a legal framework governing community participation, either under their Constitution or their Law on Public Administration. Other countries need to establish a legal framework so that their health systems and other sectors will have policies that promote community participation and health education with a structure that supports them.

All countries reported on the implementation of health education activities in conjunction with the mass media: radio (20), television (7), newspapers (20), and

journals (10) devoted to various aspects of health protection and disease prevention. Health promotion and education weeks are held in conjunction with the education sector for students in primary and secondary schools.

Health education in the schools is also bearing fruit in the Region of the Americas. In countries such as Argentina, Bolivia, Chile, Costa Rica, Cuba, Mexico, the Dominican Republic, and Uruguay innovative efforts have resulted in school campaigns to promote healthy lifestyles, prevent Chagas disease, dengue, malnutrition. Health education in the schools, however, remains fragmented and diffused among various subject areas. The experience of the countries indicates that the different health programs require the attention of teachers, whose lack of training, up-to-date information, and support further hinders their ability to carry out health education using a comprehensive approach.

The countries are progressing toward a broad and integrated model of health education in the schools, incorporating communication techniques and attractive educational materials, promoting reflection, analysis and action. In Argentina, for example, an agreement between the Ministry of Health and Social Action and the Ministry of Culture and Education, which was implemented in 1993, clearly indicates that a broad and inclusive health education policy, the product of a joint effort between the two sectors, is being implemented in the schools. This policy includes mechanisms for intersectoral coordination, development and implementation of a teacher training program, and a monitoring and evaluation system.

In Health Education Workshops conducted in Mexico, Uruguay, and Venezuela, those responsible at the national level outlined the most significant drawbacks of the medical teaching model that has guided health education in the Region. They also indicated that health education programs and activities should be planned and implemented on the basis of needs and priorities determined at the local level with the full participation of the community. They pointed out the importance of continuity in programs and activities and the need to avoid interrupting or canceling them, which has led to a loss of confidence and damaged the credibility of state institutions.

Health promotion is clearly a proposal for work in the area of health to promote changes in living conditions and is therefore closely linked with the comprehensive development of individuals and communities. It is increasingly seen as the sum total of actions on the part of the population, the health services, health authorities, and other social and productive sectors aimed at improving individual and collective health conditions.

The construction of a framework for health promotion has been accomplished through a series of landmarks characterized by proposals, international conferences, and

their respective declarations in which the developed countries of the West have had the greatest participation and which at different points have dealt with broad topics and mechanisms for action, since the time when the Lalonde proposal was presented in Canada in 1974. Also contributing to this process are proposals stemming from meetings held by developing countries in the Americas, such as the Bogota Conference in November 1992 and the English-speaking Caribbean Conference in June 1993.

The Lalonde policy proposal was a critical call to reexamine the way in which priorities and resources are defined in the health sector; the Conference of Ottawa had universal significance and established the definitive bases for the strategy and mechanisms for action; the Conference of Adelaide (Australia) issued a special appeal to combine environmental and economic initiatives, uniting both poor and developed countries in a common public health effort; the WHO Call for Action cried out for the need to reactivate the social development processes in poor countries; the Sundsvall (Sweden) conference focused on creating environments within a broad social, political, economic, cultural, and physical framework.

In November 1992, 550 participants from 21 countries met at the International Conference on Health Promotion in Bogota (Colombia) to define what health promotion means for the peoples of Latin America. The Declaration from this Conference stresses the relationship between health and development and the need for solidarity and social equality in attaining both. The participants also deplored the violent conditions of our societies and the diseases that result from social marginalization and the destruction of the environment.

A similar event was held in the English-speaking Caribbean in June 1993. This meeting also recognized the intimate relationship between living conditions, lifestyles, and productive processes and development in today's societies. The agenda approved by 19 participating countries commits them to carrying out programs and activities to produce changes in lifestyles associated with the principal diseases affecting the Caribbean population.

The Ottawa Charter for Health Promotion specifically identified the areas of action to make the strategy operational: the development of a series of public policies; the creation of supportive environments; the strengthening of community action; the development of staff capabilities; and the reorientation of health services. These areas constitute the basis for developing way of working that can help to improve the conditions and lifestyles that affect health. Although there is increasing progress in terms of developing the postulates and principles for health promotion activities at the formal diplomatic level, concrete action to address specific problems in the developing countries is just getting beginning.

2. Food Supply and Food Protection

Structural adjustment measures have had an adverse impact on the national food supply and a negative effect on the purchasing power of the poorest groups owing to the reduction in real income, thereby threatening the food security of broad population groups. Food security is understood to mean the access that all the people have at all times to the food they need to lead healthy lives. This should not be analyzed simply from the standpoint of the food supply and access to it, but also other factors such as environmental health and sanitation.

At the national level, food security refers to ensuring an adequate food supply, guaranteeing that it is channeled toward the entire population and that it is economically and socially accessible to the population. A rough way of analyzing this aspect is to use the figures for the available energy (kcal) per capita, which should exceed the requirements by approximately 15-20% to make up for uneven distribution.

The Annex shows the available energy (kcal) per capita for the countries of Latin America and its adequacy, expressed as a percentage of average daily requirements, as well as the available proteins. It can be seen that several Central and South American countries are not able to meet their average daily caloric requirements. This leads to the conclusion that a large segment of the population falls wells below these requirements.

An analysis by population groups within a single country clearly reveals grave inequities in the availability of food and nutrients. In Argentina in the late 1980s, while the lowest quartile (the 25% of the population with the lowest income) had 2017 calories, 71 g of protein, 512 mg of calcium, 11 mg of iron, 60 mg of vitamin C, and 11 I.U. of vitamin A per day, the values for the highest income quartile were 3,450 calories, 11 g of protein, 976 mg of calcium, 18 mg of iron, and 105 mg of vitamin A. In Guatemala in 1990, a breakdown of the population into four income levels (low, middle, high, and very high) revealed that caloric intake ranged from 1,536 per day in the low income group to 4,245 in the very high income group (70% and 190%, respectively, of the daily requirement) and proteins ranged from 37 g to 130 g, meeting 61% and 211% of the requirement, respectively.

Another important aspect of food security is the index of food production for 1990-1992, using 1979-1981 as the base period. While the index of total production increased by 12% in North and Central America and by 34% in South America, the per capita index of production fell by 4% in the former and increased by 8% in the latter. In the countries for which information is available, almost all increased their total production, except Haiti, Nicaragua, and Guyana. The picture changes significantly when food production per capita is considered, because most countries experienced a decline. Thus, 16 of the 27 countries for which information is available (see Annex)

have less food available from domestic production than in 1980, and the index fell by more than 10 points in several countries including Guyana, Haiti, Nicaragua, Panama, the Dominican Republic, and Suriname.

Regarding food assistance, in 1991 the countries of Latin America and the Caribbean received about 2 million tons of food, an amount significantly below that received in 1987 when the figure was nearly 2.7 million tons. It should be added that the world's two major food donors, Canada and the United States of America, lie within the Region of the Americas. The major country beneficiaries of food assistance in grains, with amounts ranging from 200,000 to 300,000 tons per annum between 1988 and 1990, are El Salvador, Guatemala, Jamaica, Mexico, and Peru. The countries that received milk assistance at a rate of more than 5,000 tons per year between 1987 and 1989 are Bolivia, Brazil, El Salvador, Guatemala, Honduras, Mexico, and Peru.

Improving nutrition has generally and traditionally been thought of as a activity properly the purview of the social sector. In most Latin American countries, the "nutritional" activities that have been carried out are identified with efforts associated with: dietary assistance for specific groups; teaching about nutrition; consumer orientation/education on food and nutrition; the promotion of breast-feeding; distribution of food stamps; food fortification; and distribution of dietary supplements such as iron and vitamin A.

Another aspect of food security is food contamination. This continues to be a serious problem in the Americas, although its magnitude is only partially known because food protection programs and information systems are lacking. Some of these deficiencies were dramatically demonstrated during the cholera epidemic that affected most of the countries of the Region.

The WHO estimate that, from 15% to 79% of diarrhea cases in children under five years of age, depending on the country, are attributable to contaminated food is applicable to the Region. In addition, traveler's diarrhea affects 20% to 50% of the foreigners traveling to Latin America and the Caribbean.

The epidemiological surveillance system for food-borne diseases (FBD) is inadequate in most of the countries of the Region. The small amount of information produced in the countries comes only after several years of delay, making it impossible to implement timely control measures.

In the United States of America, the country with the best information system in the Region, official estimates indicate that the reported instances of FBD cover only 20% of the actual cases. Based on this, the Centers for Disease Control and Prevention (CDC) estimate that there are about 6,500,000 cases of FBD in the United States of

America, which would result in nearly 8,000 deaths. Of this total, it is estimated that *Campylobacter* and *Salmonella* bacteria are each responsible for 2,000,000 cases per year. In third place, based on the number of people affected, is poisoning from *Staphylococcus aureus*, with 1,500,000 cases per year, and in fourth place, *Streptococcus* group A, with 500,000 cases per year.

If we consider that the average cost of a case of FBD in the United States of America (lost work, hospital costs, medical expenses, medications) is about US$750.00, it is not extreme to state that food-borne diseases alone are responsible for annual expenditures of about $5,000 million.

In January 1993, nearly 300 people in two states on the west coast of the United States of America were poisoned by *Escherichia coli* O157:H7 after consuming contaminated hamburgers that had not been cooked at high enough temperatures.

Cuba reports 1,403 outbreaks, involving 82,262 people, during the period 1985-1989. From 1990 to 1992, there were 882 reported epidemic outbreaks of FBD, affecting 40,451 people. In 1992, most of the outbreaks were due to poisoning from ciguatoxin (30%), followed by *S. aureus* (27.4%) and *Salmonella* (13.2%).

Studies conducted in San Salvador, El Salvador, indicated that 50% of the fruit, milk, vegetables, and meats were contaminated with fecal matter. *E. coli* was identified as the principal contaminant in food sold on the street (83.8%).

In the Bahamas, during a brief period in 1991, more than 1,000 people, most of them tourists, fell ill after consuming shellfish contaminated by *Vibrio parahaemolyticus*.

In 1988, Mexican health authorities found that FBD were responsible for 23.3% of all morbidity and were among the 10 major causes of death. In 1989, there were 18,852 reported cases of typhoid, 93,711 cases of salmonellosis, 113,901 cases of shigellosis, and 48,704 cases of food poisoning from a unidentified etiological agents.

Costa Rica reports the presence of aflatoxins in some grains, especially white corn. From 1985 to 1988, a study detected aflatoxins in most samples, and levels were above 20 mg/g in more than 50% of the samples analyzed.

Considering the immediacy of the subject, cholera merits treatment independent of other FBDs. Studies conducted in some countries of the Region have verified the role of food in the spread of *Vibrio cholerae*. It should be pointed out that food sold on the street constitutes the greatest risk, primarily because of unpredictable handling at home or on the street and the handler's lack of basic knowledge about hygiene.

While street food is dangerous, manufactured food is comparatively safe due to the quality control measures frequently adopted by organized industry. However, it must be emphasized that the food prepared on an industrial scale can also pose a risk of cholera transmission if proper manufacturing practices are not adopted. One example is the outbreak among passengers on an international flight in 1992 that left 75 passengers infected with cholera and led to one death. In that same year, another outbreak was reported in a hospital in Santiago, Chile, where 20 people were infected after consuming cooked beets contaminated by other raw beets that had been irrigated with wastewater.

Canada and the United States of America continue to be the pioneers in the Region in promoting a healthy diet. In 1992, the two countries published and distributed the *Food Guide Pyramid and Food Guide to Healthy Eating*.

3. Safe Water and Basic Sanitation

The accelerated rural migration that prevails in Latin America has meant a proportional reduction in the rural population. One result of rapid urbanization is the appearance of marginalized settlements on the outskirts of cities, with no planning and no basic infrastructure for public services. These marginal urban areas represent 40% of total urban population, and they are expected to absorb 80% of the anticipated population growth anticipated of the 1990s. With this big wave of urban population, the provision of drinking water remains a great concern for the Latin American and Caribbean governments. There are no services for poor people or, in the best of cases, such services are unreliable.

Government services and drinking water companies, many of which are financially weak, do not have incentives for extending the supply to low-income sectors and marginal areas in cities where the potential for recovering investment costs is low. As a result, many poor urban inhabitants must purchase water from beverage sellers, frequently at prices well above those paid for water provided by public systems in the cities.

In Canada, 100% of the population had access to drinking water by the beginning of the 1990s, while 80% had access to public excreta-disposal systems, and the remaining 20% had individual systems in their dwellings. By the same date, 99% of the urban and rural population in the United States of America had access to drinking water and excreta disposal.

The Annex includes data on the coverage of the drinking water supply for the year 1992 in those countries of Latin America and the Caribbean that provided information. Urban populations with water supply services reached nearly 279 million inhabitants (89% of the total). With this coverage, 88% of the population was served

by household connections and 12% used public sources accessible within 200 meters of their homes. In rural areas, water supply services reached 69 million inhabitants (57%), which, together with the urban population, meant that 348 million people (80% of the total population) had water supply in 1992. However, this information does not usually take into account systems that function irregularly or those that are simply interrupted. These factors (intermittent supply and breakdowns in the distribution system) have helped make it technically impossible to maintain the quality of the water supplied to the population.

However, the information on coverage for 1992 does not show an appreciable increase in comparison with coverage in 1980 and particularly with coverage in 1988. The urban population served has grown by barely 1% over the period 1988 to 1992, although when compared with 1980, the year in which the International Drinking Water Supply and Sanitation Decade began, the impetus has succeeded in increasing coverage by 7%. In the rural sector, the increase has been sustained, 10% compared to 1980 and 2% compared to 1988, although it should also be noted that the total rural population has remained virtually unchanged, with a downward trend between the years studied.

In 1992, eight countries reported coverage for less than 80% of their urban population, and 11 countries reported coverage for less than 50% of their rural population with services provided through household connections or easy access to public sources.

Nevertheless, it is possible to conclude that almost all the countries made efforts to increase the coverage of drinking water services in the urban sector, although the coverage in some countries remains unchanged, reflecting 1980 levels (Colombia, Ecuador, Guyana, Mexico, and the Dominican Republic). Furthermore, other countries reported significant improvements in their coverage levels over 1980 (Brazil, Chile, Peru, and Uruguay). The clear impetus given to extending and installing new services after the appearance of cholera in 1991 should be noted. Coverage statistics will probably start to show this increase soon, starting in 1994.

The urban population with sewerage and sanitation services reached 249 million inhabitants (80%), while these services covered 41 million inhabitants (34%) in rural areas; together this meant that 292 million people (67% of the total population) had such services in 1992. This coverage includes the population served by connections to the sewerage system as well as those served by other systems (septic tanks, latrines). The Annex shows data on the coverage of sewerage and excreta-disposal services in urban and rural areas for the year 1992 for the countries of the Region that provided information.

Based on the data provided by the countries for 1992, we can conclude that coverage levels in urban areas have not changed significantly when compared to coverage in 1980 and 1988, since they have remained stable at about 80%. In rural areas, the increase over 1980 was 12% and the increase over 1988 was 2%. However, as mentioned earlier, it should be noted that the rural population has not grown over the last 12 years.

In 1992, ten countries reported sewerage service coverage and alternative methods for excreta disposal for less than 80% of their urban population; 14 countries reported coverage for the same services at below 50% in rural areas.

The information obtained indicates that about 50% of the population in urban areas has household connections to the sewerage system and 30% has individual septic tank and latrine systems. Due to the high cost of these waste collectors, several countries are experimenting with innovative technologies or technologies more appropriate to local conditions, such as those that modify the design criteria or combine collectors, septic tanks, and latrines in integrated systems and use community participation for operation, maintenance, and administration. These alternatives can achieve cost reductions on the order of 60% to 80%. Examples of this type of approach have been reported in Cochabamba, Bolivia, Recife and São João de Meriti in Brazil, and small communities in Colombia and Peru.

In most countries excreta disposal in rural areas is handled through individual methods, usually latrines, and in exceptional cases, septic tanks and drainage fields. In contrast, the urban sector has better services and greater coverage.

In addition, unmet needs for sewerage and excreta disposal systems in Latin America and the Caribbean, estimated on the basis of the coverage data for 1992, indicate that a total of 162 million people are without adequate disposal systems—73 million in urban areas and 89 million in rural areas.

The problems that result from the discharge of untreated wastewater are presented in the chapter on the environment.

Public health, sanitation, and environmental services in these countries are provided through a broad range of agencies that still do not constitute a single formal sector, because several countries break these services down into subsectors for water and sanitation, solid waste management, and the promotion and control of environmental quality. However, it is clear that in most countries the agencies responsible for environmental matters are being defined or strengthened.

Despite efforts in the area of institutional development over the past two decades, many agencies in the countries continued to suffer from constraints and restrictions and many of the problems they continue to face are related to the inappropriate organization and structure of the sector and the inefficiency of the institutions themselves. In some countries, this situation has led to duplication of efforts, overlapping and gaps in certain functions and areas of responsibility, inefficient use of available resources, and coordination difficulties within the sector and with other sectors. PAHO developed a methodology for making an inventory of and evaluating the installed institutional capacity in health and the environment; the regional implementation of this methodology began in 1993.

However, during the current decade the countries have begun the process of changing the organization and structure of the environmental services sector and its service institutions. The contributing factors leading to this change include: rapid urbanization and subsequent environmental deterioration due to unplanned industrialization that responds more to the need for production than to an approach based on environmentally sustainable development; emphasis on the adoption of a market economy, which means a weakening and even a suppression of central planning agencies, as in the case of Peru; and the additional obvious, although dramatic, factor of the spread of cholera in 1991.

As a result, the governments, taking up the new trend, are leaning toward private sector participation and decentralization (municipalization), in both managing basic community services and preserving environmental quality. In addition, this trend toward the modernization of the State is changing the shape of some central government institutions, including those responsible for sanitation and the environment.

Some countries have tried to improve the institutional situation and have met with positive results. In Chile, the institutional development process has created new structures and the decentralization of regional water and sanitation companies has been finalized; they are now operating on a commercial basis and this will lead in the future to economic and financial self-sufficiency. In Brazil, the National Sanitation Plan (PLANASA) has already been dismantled, leaving in place state-level companies that have substantially expanded and improved services.

Decentralization of drinking water and sanitation services, with decision-making at the regional and local agency level, has raised expectations for improved efficiency in the administration and operation of services. This approach has been adopted by several countries with varying results.

In Argentina, the decentralization process was carried out rapidly. Significant institutional and financial differences were found in the decentralized agencies. This

produced a vacuum in national authority that was particularly critical at the local level in smaller cities and forced different organizational and operational methods to be adopted.

In Colombia, a legislative process of political and administrative decentralization gave the largest municipalities responsibility for developing the infrastructure, including drinking water and sanitation services. The process includes the transfer of resources to municipalities of less than 100,000 inhabitants and provides for other necessary adjustments and mechanisms. As a result, the sector has been totally reorganized under what is known as the "Plan to Change the Water and Basic Sanitation Sector" in the Social and Economic Plan which combats critical poverty and supports the decentralization of public services. Decentralization processes, with their special characteristics, are under way in other Latin American countries. In many cases, it will not be possible to evaluate the results of this decentralization process for some years. However, it is interesting to note that there is concern in some countries over the potential impact of decentralization on national programs, which are still essential and important for strengthening the sector.

Despite the progress achieved, some countries feel that inappropriate organization significantly constrains the development of the sector, as does the lack of governmental policies.

The financial resources for drinking water and sanitation services, urban sanitation, and even for promoting the quality of the environment must compete directly with productive sectors such as agriculture and industry or with infrastructure sectors that produce benefits that are more easily quantifiable in economic terms (for example, energy, transportation and communications). Environmental services are usually classified as a social sector with no tangible contribution to economic growth. This is an erroneous view, because water supply, sanitation, and solid waste management, which are obviously important in economic development and environmental preservation, have a high cost. However, the sector continues to receive financial support in the form of loans and donations from international, bilateral, and multilateral credit institutions and from nongovernmental organizations (NGOs).

The participation of private enterprise in the sector is beginning to play a key role in the administration of environmental health services. In Buenos Aires and Caracas the awarding of contracts to provide water and sewerage services has been considered; in Lima as well, the process is being directed toward the privatization of such services. In addition, the experience of several countries, including Argentina, Brazil, and Chile, indicates that some private contractors collect solid waste more efficiently than municipalities do. When collection is entirely private, as is largely the case in Guatemala City, a large burden is lifted from the municipal budget.

Despite the efforts made, the desired results have not been obtained in the operation and maintenance of systems. In several countries, this problem has been identified as second only to the financial issue because of its impact on the quality of water and services and its deteriorating effect on installations. In this respect, several countries note very serious limitations. The information on specific cases, especially in small communities, suggests that new drinking water services are frequently interrupted or cease to function shortly after startup; this represents a loss of both the investment and the credibility of the programs. It has been reported that water losses in the distribution networks range from 40% to 60%. In many cases, the actual magnitude of the loss is unknown. The studies on operation and maintenance usually indicate a lack of programs, physical inventories, information on consumption, data on the hydraulic operation of installations, and data on operational costs.

Water losses in the supply systems, together with the inefficient use of water or water wasted without concern for conservation, have a negative impact on company finances and place an unnecessary demand on groundwater resources. Water consumption in most Latin American capital cities exceeds 300 to 400 liters of water per person per day. This excessive consumption is due to several factors such as water losses, the low value placed on the resource, the failure to measure consumption, and rates that do not reflect the real cost of the service. These considerations are closely connected with the operation and maintenance functions. It is estimated that 1 to 1.5 billion dollars in water losses a year go unpaid in Latin America.

From an economic and institutional standpoint, the rehabilitation and optimal utilization of the systems also merits special attention; this aspect is largely ignored in some Latin American countries. A good job in this area could mean a net savings from better rates of return on the investments made, because plans for new expansion and investments could be postponed and better services would be provided. As a result, this area has a high priority in sectoral development plans.

This situation is partially due to the fact that operation and maintenance have frequently been considered secondary functions, often unrelated to the objectives of the water companies. This leads to inadequate managerial control and a lack of information for supporting the process; these deficiencies are frequently evident in the drinking water services of several Latin American countries. This is even more evident in those critical systems that have not clearly defined their objectives, plans, and long- and short-term programs or their budgetary processes. These services are characterized by a lack of operational and administrative tools for programming, evaluating and controlling activities and frequently by a lack of clarity in analyzing costs and benefits.

There is a marked difference between water and sanitation services in terms of coverage rates, investments in the two areas, the users' commitment to paying for the

two services, and public support. This difference has been discussed from several perspectives, but it has not yet been possible to obtain concrete changes in sewerage service policies in the Latin American and Caribbean countries. Inadequate sanitation is accompanied by an equal or greater number of risks than an inadequate supply of water, and it has therefore been a mistake not to have invested in it in the past.

Wastewater treatment presents an important challenge to the responsible agencies, as well as to administrators and technical staff in the countries, because of problems related to natural resources and the water supply, as well as the high cost of treatment installations and the lack of appropriate policies and technologies adapted to the specific situations and characteristics of the countries of the Region.

4. Maternal and Child Care, Including Family Planning

4.1 *Maternal and Child Health Situation*

When the latest infant mortality rates (see Annex) are compared with those reported three years ago (1991) when the second evaluation of the strategy for HFA/2000, a generally downward trend was made in those countries for which the data refers to different years, although there are some exceptions in countries where the rates have stagnated or risen, such as Argentina, Belize, Grenada, Nicaragua, and Suriname. There were significant decreases in Bolivia and Haiti, although in the latter country the downward trend may have ceased after 1990. The latest United Nations estimates (*World Populations Prospects, 1994 Revision*) for infant mortality during the period 1990-1995 are also presented; these figures also show a generally downward trend in comparison with earlier estimates.

The differences in the infant mortality rate (IMR) are great not only between countries but also within the various countries, whether the breakdown is by area of residence (urban and rural), political and administrative units within countries, the mother's educational level, areas within the large cities, type of access to services (public, social security, private). Thus, according to the data from DHS surveys conducted during the latter half of the 1980s in Bolivia, Brazil, Colombia, Ecuador, Guatemala, Mexico, Peru, and the Dominican Republic, infant mortality rates among mothers with little or no education were from 2 to 5 times higher than those for mothers who had completed secondary school. Infant mortality rates were clearly higher in rural areas, with the exception of the Dominican Republic, although the difference was not as significant as the difference based on educational level. In Uruguay, while the infant mortality rate for mothers who received care from the public sector was 21 in 1992, the rate for mothers cared for by the private sector was 12. In the United States of America, the IMR for caucasian mothers was 7.6 in 1990, but increased to 18 for the children of black mothers.

Among the human development indicators currently in use, the maternal mortality rate, despite the fact that it is more frequently under-reported in developing countries, is the indicator that makes the clearest distinction between the industrialized nations and developing countries; these differences are considerably wider than those for infant mortality.

According to WHO estimates, the number of maternal deaths for 1988 in Latin America and the Caribbean was 25,000 (2,000 in the Caribbean, 6,000 in Mexico and Central America, and 17,000 in South America), for a maternal mortality rate of 200 per 100,000 live births, while the rate for North America was 10 maternal deaths per 100,000 live births.

The latest data available on maternal mortality (see Annex) constitute an improvement over the figures reported three years ago, when the second evaluation of the strategy for HFA/2000 and Primary Health Care was carried out, although progress is slow. The estimated rate for 1983 was 270 per 100,000; the estimate for 1988 and recent data are cause for optimism regarding the goal of reducing the rate for the Region by 50% by the year 2000, although there will still be countries and areas within countries that have very high rates.

It is difficult to obtain precise figures on the actual frequency of these deaths because of general deficiencies in death records and because in many causes the death certificate fails to mention a pregnancy. These types of deficiencies are so widespread that they appear even in hospital settings, including those in industrialized countries. In Latin America and the Caribbean, the underreporting that is discovered fluctuates between 39% and 72%. The magnitude of this underreporting, which is higher in countries with higher mortality, is a consideration that should be taken into account in any analysis of this problem.

In terms of their contribution to the total number of deaths, complications associated with pregnancy, delivery, and the postpartum period continue to represent one of the five leading causes of death in women aged 15 to 49 in 12 Latin American and Caribbean countries, and one of the ten major causes in most of the remaining countries in the subregion.

Of the causes defined, abortion figures as the leading cause of maternal death in the Region. This is followed in order of importance by toxemia, hemorrhages, and postpartum complications. It is important to stress that the designation of *abortion* as the cause of death is markedly underreported because of the illegal nature of the practice. Induced abortion continues to be legally banned throughout the Region, with the exception of Canada, the United States of America, and Cuba. Despite this underreporting, official figures indicate that abortion is the leading cause of maternal

mortality in nine of the 25 countries analyzed, and the second most frequent cause in another nine countries. Its contribution exceeds 30% of total maternal deaths in five countries (Argentina, Chile, Costa Rica, Puerto Rico and Suriname), ranges from 20% to 30% in eight countries (Colombia, Cuba, Jamaica, Guyana, Nicaragua, Paraguay, Trinidad and Tobago, and Venezuela) and is the leading cause of maternal death, with percentages below 20%, in Guatemala, Honduras, and Uruguay (it shares first place in Uruguay with postpartum complications). It has been estimated that illegal abortion causes one out of every four maternal deaths in Latin America. In terms of incidence, the estimated rate for Latin America is 65 abortions per 1,000 women of childbearing age; this figure is still higher in urban areas. This incidence implies a ratio of at least one abortion for every two or three deliveries in the subregion.

Toxemias account more than 25% of the maternal deaths in Brazil, Canada, Colombia, Jamaica, the Dominican Republic, Mexico, and Trinidad and Tobago. *Hemorrhages* are the leading cause of maternal death, with rates approaching or exceeding 25% of deaths, in Ecuador, Guyana, Panama, Paraguay, Peru, Puerto Rico, and Suriname. *Postpartum complications* are the leading cause of maternal death in the United States of America and reach percentages above 20% in Canada, Chile, Jamaica, and Suriname. It should be pointed out that deaths caused by toxemias, hemorrhages, and postpartum complications are closely related to the coverage and quality of prenatal care and care in childbirth and the immediate postpartum period. The figures in the Annex on the percentage of prenatal care and deliveries attended by trained personnel clearly illustrate an inverse relationship between maternal mortality rates and such coverage.

With regard to recent trends, the information available for the period 1989-1991 indicates that the coverage of prenatal care for pregnant women and for delivery attended by trained personnel remained stable or increased modestly in most countries, in comparison with the figures from the previous evaluation of HFA/2000 conducted in 1991, in which the information corresponded to earlier years. Progress in this area is slow, and many countries have coverage of below 50%. Coverage of above 90% for both types of care are found in the non-Latin Caribbean countries (except Jamaica), Argentina, Canada, Chile, Costa Rica, Cuba, the United States of America, and Uruguay. Unless there are radical changes in the next few years, it appears highly unlikely that many countries will fulfill the goal of achieving total coverage for this type of care.

The frequency of administration of tetanus toxoid (see Annex) as an indicator of the quality of prenatal care makes the situation of low coverage in certain countries even more dismal, suggesting that a significant proportion, sometimes as much as two-thirds of the pregnant women who receive some prenatal care, are not vaccinated. This data

should be interpreted with caution. However, because the vaccine is administered only in high-risk areas in some countries, coverage can appear low.

Activities for monitoring growth and development (G and D) from the perinatal stage to adolescence are some of the keys for ensuring that the targets for reduced morbidity and mortality established for the Region are met. This means a redoubling of efforts because, while records of these activities are not kept separately, it has been estimated that only about 45% of the children in the Region under the age of 5 have had at least one growth and development check-up per year. Once again, the coverage among the different countries varies widely, ranging from 80% in the English-speaking Caribbean, Cuba, Costa Rica, and Chile to 30% in some South American and Central American countries.

This situation unequivocally demonstrates the urgency of reallocating existing resources and in some cases infusing additional resources into the health system to expand and revitalize maternal and child care services, improve the coverage and quality of existing services, and develop alternative models of service.

4.2 *Family Planning*

Recent statistics indicate that more than 50% of the women in legal or common-law marriages in the Americas are using some contraceptive method and that most of this use involves so-called "modern" methods, i.e., those that require supplies or clinical interventions (anovulatories, intrauterine devices, condoms, sterilization, diaphragms). In terms of subregions, the highest percentages for contraceptive practices are recorded, in descending order, in North America (74%), South America (63%), the Caribbean (53%) and Central America (49%). In these last three subregions, there are also significant variations among the countries within each subregion (see Annex).

Over the past 15 years, the prevalence of contraception has increased notably in most of the countries of the Region for which information is available, except for those in which prevalence was already high by the mid-1970s. In countries such as Colombia, El Salvador, Haiti, Guatemala, Mexico, and Paraguay, the rate of prevalence increased by more than 100%. At the other extreme, Peru recorded the most modest increase, 17%.

Within the countries, the opportunities for access to and the ability to use contraceptive techniques—and some methods in particular—also vary according to factors in the women's social milieu; these disparities are particularly evident among women living in rural and urban areas and among those with different levels of schooling (see HCA, 1994). Both place of residence and educational level produce profound contrasts in contraceptive use, with the greatest inequalities being noted between the lower and

higher ends of the educational scale. An extreme case within this educational context is Guatemala, where the percentage of women that utilize contraceptives appears to be six times higher among the most educated women than among women with the lowest level of schooling. Another variable that introduces broad variations with regard to the average level of use is age, specifically younger ages; as a group, women aged 15 to 19 exhibited lower use rates, even lower than the category "uneducated women". The limited use of contraceptives among adolescents is even more marked among single women who, because they are not in a "union," do not fall within the "at risk of pregnancy" category, which is the primary focus for the intervention of family planning programs. Note that in practice this category tends to exclude not only single women, particularly younger women, but also all men.

The type of method used is an indicator not only of preferences (demand) but also access (supply). The available information shows that the methods most frequently used are female sterilization in Latin America and the contraceptive pill in the Caribbean. This information also makes it possible to observe that the growth in the prevalence of contraception in countries such as Brazil, Colombia and El Salvador over the past 15 years has been overtaken by the increase in female sterilization.

The Demographic and Health Surveys present recent information on the frequency of use of various contraceptive methods in eleven countries of the Region. The methods most frequently utilized, in descending order, are as follows: female sterilization, oral anovulatories, periodic abstinence, intrauterine devices, withdrawal, injectables and vaginal suppositories, condoms, and male sterilization. This order emphasizes the fact that women bear most of the responsibility, risks, and side effects associated with contraceptive practices. Strictly male methods are used less frequently, with prevalences of under 1% for male sterilization and 2% for condoms, except in the English-speaking Caribbean and Costa Rica, where the latter method reaches frequencies up to 12%, which approaches the pattern observed in North America. The highest proportion, more than 30% sterilization for women with sexual partners, is recorded in Brazil, El Salvador, and the Dominican Republic; an intermediate rate of between 15% and 21% is recorded in Ecuador, Colombia, and Mexico; and rates equal to or lower than 10% are recorded for Bolivia, Guatemala, Paraguay, Peru, and Trinidad and Tobago.

The accessibility of family planning programs was evaluated in 20 countries of the Region in a study that weighed several aspects of accessibility: available options, technical competence of the care providers, and availability of information and services. The results of this survey published in 1992 rate the programs in only six countries as "good": El Salvador, the United States of America, Colombia, Cuba, Mexico, and Trinidad and Tobago. An "average" rating is given to the programs in Canada, Costa Rica, Ecuador, Honduras, Jamaica, Panama, Peru, the Dominican Republic, and

Venezuela, and the programs in Bolivia, Brazil, Guatemala, Haiti and Paraguay are rated "deficient".

5. Immunization and Diseases Preventable by Vaccination

From 1982 to 1992, the programs for diseases preventable by vaccination during childhood exhibited two broad and significant trends in the Americas.

The countries continually expanded their levels of coverage for immunizations and maintained this coverage despite stringent financial measures and gradual reductions in contributions from donors.

Higher levels of coverage, improved surveillance systems, and broader and more experienced staff under the Expanded Program on Immunization (EPI) made it possible to define high-risk groups and underserved areas and to allocate resources to them more precisely.

In light of these trends, three bold initiatives were launched in the Region: the eradication of indigenous wild polioviruses, the gradual elimination of neonatal tetanus, and the reduction and, ultimately, the elimination of measles.

Although there are differences among and within individual countries, measurable progress has been made in implementing the three initiatives throughout the Region. If current trends continue, the diseases that barely a generation ago were a significant cause of childhood illness, disability, and death will have been eliminated by the end of the century.

The levels of coverage for oral polio vaccine (OPV) were close to 88% throughout the Region by the end of 1992. Individual 1993 data for the countries are presented in the Annex. When these values are analyzed, it can be observed that the vast majority of countries have coverage of close to 80% or higher, except for Haiti, with 30%, and Bermuda, with 65%. OPV coverage for all of Latin America and the Caribbean was approximately 37% in 1978; it increased to 78% in 1984, to 83% in 1988, to 86% in 1989 and to 90% in 1990, falling to 88% in 1991.

Intense surveillance of acute flaccid paralysis to detect high-risk areas that require special control measures or adjustments in vaccination strategies involves weekly negative reports from a network of informants working in health units. The number of these units has risen from 130 at the beginning of 1989 to nearly 3,000 by the end of that same year and to more than 16,000 in 1990. In 1993, the number reached more than 22,000 in all countries of Latin America and the Caribbean.

Shortly after adopting the polio eradication initiative in 1985, PAHO organized a laboratory network to provide the extensive virological support necessary to eradicate the transmission of indigenous wild poliovirus in the Americas. Fecal material samples are taken in all cases of acute flaccid paralysis and cultured to rule out the possibility that the wild poliovirus is the causative agent. In earlier times, polioviruses were classified using traditional serological methods such as monoclonal antibody methods. Recently, the Centers for Disease Control and Prevention (CDC) have established more specific molecular techniques and seven laboratories in Latin America and the Caribbean are currently using the most up-to-date techniques.

As a result of the high levels of coverage, in 1992 the Region began to prepare for certifying the eradication of the indigenous wild poliovirus throughout its territory. To ensure that the poliovirus has actually has ceased to spread and that the Americas can contain the transmission of this type of virus when imported from outside the region, the International Certification Commission on Poliomyelitis Eradication (ICCPE), established in July 1990, set established criteria to be followed by the Region so that it can be declared free of poliomyelitis.

One of the major challenges during what remains of the 1990s will be to avoid being careless with resources and to maintain the policy of keeping acute flaccid paralysis under strict surveillance. Toward the end of 1992, wild poliovirus imported from the Netherlands was discovered in an unvaccinated religious community in Canada. Containment efforts were carried out rapidly and effectively but what happened in Canada demonstrates the risk of importing the virus from other parts of the world.

The incidence of measles in the Americas reaches a high point in two-year cycles. After introduction of the measles vaccine, morbidity rates began to decrease and continued to do so in waves, with the troughs of the characteristic curves progressively falling. In 1993, 51,465 cases were reported, the lowest figure ever recorded as that time. This represented a marked reduction in the 202,772 cases reported in 1984 and the 153,417 recorded as the trough of the curve in 1989. In 1990, 237,573 cases were recorded, and in 1992 there were 97,369 reported cases. Although the cyclical nature of measles makes control difficult, the pattern of decline in reported cases shows that the expansion of vaccination coverage has had an effect. In 1984, 53.4% coverage was considered great progress compared to the 33% coverage of 1978. In 1992, coverage reached 80% for the first time. Individual 1993 data for the countries are presented in the Annex.

In light of Cuba's successful campaign in 1986, which vaccinated all children aged 1 to 14, the Ministers for Health Affairs in the English-speaking Caribbean committed themselves in 1988 to eliminating the indigenous spread of measles by 1995. In May 1991, mass campaigns were conducted in that subregion; more than 90% of

children between the ages of 9 months and 14 years were vaccinated; surveillance of fever and eruptive diseases was then introduced in order to provide a new and more sensitive means of identifying suspected cases of measles. Today all the countries of the English-speaking Caribbean report weekly to the Caribbean Epidemiology Center (CAREC) on the appearance or absence (negative report) of cases of fever and eruptive diseases. As of the first quarter of 1994, no case of laboratory-confirmed measles had been reported in the English-speaking Caribbean for nearly two years.

From April to May 1992, Brazil and Chile also carried out massive campaigns to vaccinate all the children between the ages of 9 or 12 months to 14 years; in these campaigns, 99% and 96% of the respective target groups were vaccinated. In Peru, where there was an outbreak of measles in 1991, the 1992 government-sponsored campaigns vaccinated nearly 75% of all children aged 9 months to 15 years. The Dominican Republic conducted a similar campaign in March 1993, and Argentina and Colombia carried out campaigns in May and June of that same year, covering approximately 96% of the target groups from age 1 to 14 years.

In December 1991, the Presidents of the Central American countries announced their adoption of the goal to eliminate measles in that subregion by 1997. The mass campaigns, which began at the end of 1992 and sought to vaccinate 95% of the children from the age of 9 months to 14 years, were completed in June 1993. Coverage for the 12,256,000 children in that age group in the Central American subregion was 89%, a figure that is expected to increase as other vaccination activities are carried out. Mexico conducted a similar campaign in October 1993, obtaining coverage of 88%.

The campaign strategy consists of a single activity to immunize all children aged 9 months to 14 years, regardless of their history of vaccination or disease, and to ensure the maintenance of high rates of vaccination in each new group of infants. The results of the national campaigns carried out to date indicate that the strategy may represent great progress in the struggle against measles.

Despite the extensive progress, problems remain. Some countries have still not achieved 80% coverage for immunization, many reported cases are not properly investigated, and it is possible that still others are not reported. In addition, the essential epidemiological information and blood samples necessary for classifying cases accurately are not collected at regular intervals, and the laboratory network is not yet fully prepared to meet the new demands of the program. As a result, during the remainder of the 1990s, it will be extremely important to give full support to initiatives to control and eliminate measles. It will also be necessary to pay close attention to matters such as civil disorders, high emigration and immigration indexes, refugee populations, and border areas.

The activities aimed at the elimination of neonatal tetanus began to intensify in the Americas in 1988. At the time, some countries were not systematically reporting cases of the disease and others combined it with tetanus cases, without differentiating by age. By 1992, Haiti was the only country that was not systematically reporting cases of neonatal tetanus. There is no neonatal tetanus in Chile, Costa Rica, Cuba, or Uruguay, but the disease is endemic in 16 Latin American countries. As a group, these countries represent 277 million of the Region's inhabitants, with an estimated 11.5 million births per year.

Statistics on morbidity and mortality from neonatal tetanus are sometimes unreliable because of underreporting. Reported cases in Latin America are those attended within the health system, particularly in hospitals. However, the hospital data is quite ambiguous, because neonatal tetanus patients often die at home or cannot reach the hospital, especially when they live in rural areas. The average for regional reporting has been estimated at about 10% of the actual cases.

PAHO resolved to eliminate neonatal tetanus in the Americas on the basis of two factors that make this measure feasible: although *Clostridium tetani*, the anaerobic bacterium that causes the disease, is everywhere, the frequency of the disease has a discrete geographical distribution, and the antibodies against the tetanus toxin are transmitted from an immunized mother to her newborn child. Given these facts, the PAHO strategy consists of identifying the areas that are exposed to a high risk of neonatal tetanus and vaccinating all women of reproductive age who live there.

High-risk areas were initially defined as geographical units that reported frequencies for neonatal tetanus above the national average in any year during the three to five year period prior to the report (the geographical dimensions of a high-risk area vary according to the political divisions in each country). Some countries have modified their initial definition of a high-risk area as the number of cases in each municipality has declined or disappeared. As a result, in Latin America there are several definitions of what constitutes a high-risk area. A number of countries use the annual repetition of cases in the same area (regardless of their number) as the criterion; others feel that a single case is sufficient to classify an area as high-risk.

The population of a group of municipalities selected as recognized high-risk areas represents a single unit. The subsequent analysis of each unit makes it possible to determine the effect of control activities and the corresponding reduction in the number of cases in a given set of areas within a country or group of countries, while improved surveillance increases the total number of reported cases by indicating new areas exposed to high risk within the same country or countries.

During the period 1988-1992, 1,229 municipalities (10% of the total) were defined as high-risk areas. The total number of cases in those municipalities has decreased since 1989. In the 1988 group, which included 4,263,000 women of reproductive age living in 269 municipalities, the annual case frequency fell from 452 to 83 between 1988 and 1992. The same drastic reduction was observed in the 1989 and 1990 groups. The reduction in the annual number of cases was also observed in the next group, although it is too soon to draw any conclusions with respect to the latest data.

The number of cases of whooping cough reported in the Americas decreased by 88% over 12 years, from 123,466 cases in 1980 to less than 15,984 in 1992. The coverage for children under age 1 who had received three doses of the DTP vaccine increased from almost 38% in 1980 to 55% in 1984 and to slightly more than 77% for the Region as a whole in 1992. Bermuda, Brazil, Haiti, and the Dominican Republic, however, had still not achieved 75% coverage by 1993 (see Annex).

Whooping cough is one of the most fatal childhood diseases, especially in areas where malnutrition and multiple infections are common. However, the mortality and case-fatality rate in the Americas cannot be analyzed with any degree of precision because of incomplete data. Much remains to be done to improve the surveillance system and the reliability of the data needed for taking steps to control the disease.

There have been periodic outbreaks of diphtheria, such as those in Brazil and Chile in 1991. However, the increased rates of immunization coverage have coincided with a drastic reduction in the number of reported cases. Indeed, it can be said that diphtheria has almost disappeared as a cause of disease and death among the infant population in the Americas. Despite the possibility of a certain degree of underreporting, greater access to the vaccine, the effectiveness of which is as high as 87% in several clinical trials, has apparently greatly reduced the spread of the disease.

6. Control of Locally Endemic Diseases and Treatment for Common Diseases

The main aspects of this topic are considered elsewhere in this report. Malaria, cholera, and dengue are discussed in Chapter I, and polio and measles are discussed in the previous section of this Chapter.

7. Primary Health Care Coverage

There is no information on PHC coverage, which is understood as the percentage of the population or of homes that have both drinking water and basic sanitation; prenatal care; care in childbirth; monitoring of growth and development; family planning programs; complete immunization coverage before the age of one against the diseases

preventable by immunization; access to services, treatment, and essential medications for common diseases and injuries.

To analyze this coverage, an approximate indicator of coverage for basic health services was constructed, with basic health services understood as care at birth and care at the time of death. To do this, the indicators of the estimated mortality records and care in childbirth were averaged. The mortality record was defined as recorded deaths due to defined causes as a percentage of the total number of estimated deaths. Care in childbirth was calculated as the number of births attended by trained personnel as a percentage of the total number of estimated births. This latter indicator, care in childbirth, appears in the Annex.

The values thus estimated for service coverage around the year 1990 for 31 countries in the Region of the Americas are presented in the Annex. According to these values, only eight countries have nearly total coverage (95% or more): the Bahamas, Barbados, Canada, Costa Rica, Cuba, the United States of America, Trinidad and Tobago, and Uruguay. Nine countries have high but not total coverage (from 80% to 95%): Argentina, Antigua and Barbuda, Belize, Chile, Dominica, Grenada, Guyana, Jamaica and Suriname. Ten countries show average values (between 50% and 80%): Brazil, Colombia, the Dominican Republic, Ecuador, El Salvador, Mexico, Nicaragua, Panama, Paraguay, and Venezuela. The four remaining countries have low coverage (50% or less): Bolivia, Guatemala, Honduras, and Peru. These last two categories of countries, with less than 80% coverage, represent the vast majority of Latin American countries, including the most populous countries. Mention should be made of the high correlation between this indicator and the various health indicators of the countries, as well as the living conditions of the population. This point is analyzed in Chapter I (Volume I) of HCA, 1994 Edition.

CHAPTER III

DEVELOPMENT OF HEALTH SYSTEMS BASED ON PRIMARY HEALTH CARE

1. National Policies, Plans, and programs

The most significant event of the period 1991-1993 was the response of the health services in Latin America to the outbreak of cholera, and in those countries without cholera, the preparation for its eventual appearance. This response involved outpatient care, hospitalization, the provision of oral rehydration salts and sera, and monitoring and inspection of food and water. It is one of the reasons for the decrease in the epidemic's overall case fatality, which appears to be diminishing as the months go by. Concern that this disease would become endemic led nearly all the countries of the Region to develop special programs to combat cholera. It was also a factor behind the preparation of a Regional Plan for Investment in the Environment and Health (PIAS), whose strategy requires short-term interventions in activities related to medical care, public awareness, food protection, and the disinfection of water for human consumption, and long-term interventions, such as improvement in the health services deficit and an increase in the supply of drinking water and basic sanitation services.

The recent trend in the past few years toward decentralization and the development of local health systems continues. In view of its importance, this topic will be dealt with more extensively in this chapter.

In addition to the stimulus provided by the development of the local health systems, the integration of health and other social services has received special impetus in recent years from the creation of Social Emergency or Social Investment Funds. Health activities in these projects are basically directed toward supplementary food and nutrition programs and the construction of satellite health clinics or health centers and basic sanitation and water works, which are practically in operation in all the countries of the Region.

In 1991 interagency and interinstitutional coordination commissions were created to support the fulfillment of the agreements reached at the World Summit for Children. The previous step, in May 1991, was the creation at the regional level of the Interagency Coordinating Commission (ICC) for PAHO/WHO, UNICEF, UNFPA, AID, and IDB. At the country level national commissions were established that prepared the National Plans of Action in 1992 in order to meet the goals; these include control of the principal childhood diseases, reduction in maternal mortality to one half, reduction in mortality in

children under five years of age to one third, provision of drinking water to all communities, universal access to services and family planning information, and basic education for all children. Also in response to the World Summit, the United States of America prepared the document entitled "A Culture of Caring: America's Commitment to Children and Families."

One element that is becoming increasingly important in the policies of the countries is health promotion, which is fundamental to the plans of several of them. Canada, with its national strategy to combat drug abuse, its initiative against domestic violence, its increase in the legal age for purchasing cigarettes, and its guide to healthy eating continues as the leader in the Region. In its final declaration, the International Conference on Health Promotion, held in Bogotá in 1992, establishes the goals and challenges to be met and the paths that must be taken to foster healthy lifestyles among the population.

In addition to the traditional activities with respect to the environment in the Region, a very important phenomenon is occurring that is highly influenced by—and in turn has an impact on—the environment: tourism. The importance of the tourist industry has sparked growing interest in environmental protection as a vital component in attracting tourists. A critical part of the tourist package is ensuring visitors of access to certain basic medical services of satisfactory quality, delivered in an efficient and timely manner. This is a new area of development in the Region, especially in the countries of the Caribbean, including Cuba.

With the civil war ended in Nicaragua, the armed conflict resolved in El Salvador, and peace talks moving forward in Guatemala, the countries find themselves confronted by a situation that involves millions of people: refugees; repatriates; disabled, relocated, and displaced persons. Health service delivery to these individuals and maintaining civil order represent a serious challenge that the countries are meeting with great effort and determination. In Guatemala the Peace Fund has been created, which provides technical assistance, included health services, to refugees and repatriates. In El Salvador, where an estimated 1.8 million persons (one third of the population) have been uprooted, the peace accords between the guerrilla forces and the government have led to the development of a National Recovery Plan; this Plan includes a heavy health services component, with various administrative modalities for the different areas or regions of the country. The losses incurred by the health system during the armed conflict owing to the damage and destruction to health units and health posts in the zones of conflict is estimated at $125 million. Decentralization in Nicaragua is making it possible to address the problems of different population groups. A critical element in these situations is the delivery of services to persons disabled or injured in the previous armed confrontations.

The subregional integration processes have transcended the purely economic and commercial aspects. In addition to diverse projects for technical cooperation among countries, which often derive from common problems experienced by neighboring countries, progress has been made in feasible areas toward setting common guidelines and standards that go beyond the production and marketing that served as the initial focus of the agreements. Thus, the Ministers of Health of MERCOSUR (Argentina, Brazil, Paraguay, and Uruguay), continued to emphasize technical cooperation among countries, and each country in 1992 designated a national coordinator and a focal point for priority technical areas. The most successful work to date has been the containment and reduction of Chagas' disease. The countries of the Andean Area have proposed a registry and common marketing system for drugs, as well as an Andean Health Card, within the framework of the Andean social security agreement. The Convergence Project is going forward; this project promotes regional integration for the development of health technology and technical cooperation among countries in that area. At the regional meeting held in Chile in July 1992 eight regional projects on biologicals, drugs, rehabilitation, information systems, and other topics were prepared, in addition to several bilateral and subregional agreements. The Convergence Project involves five other agencies, in addition to PAHO: LAES, ECLAC, CELADE, UNDP, and UNESCO.

It is in the area of financing and health expenditure that the current situation is most critical in all the countries of the Region. In Canada, Cuba, and the United States of America health reform proposals are aimed at cost containment, in light of the enormous resources consumed by health care and their continuing upward trend. The United States of America, which spent 6.5% of GDP on health in 1965, has seen health expenditures rise at more than double the rate of inflation, increasing to 13.2% of GDP in 1991 and 14% in 1992. This situation—rising expenditure, population without coverage—turned health care into one of the critical elements of the presidential campaign and the efforts of the current administration, which has submitted several plans for the reform of the health system. Canada, with a rate similar to that of United States of America in 1971, increased its health expenditure to 8.9% of GDP in 1989 and 10% in 1991.

In Cuba concern over health expenditure derives from the high priority that health care has enjoyed up to now and the costs involved in maintaining the quantity and quality of services in the midst of a serious economic situation. In the rest of the countries, the problems are usually result of fiscal adjustment policies, with a trend toward cutbacks in public funding, at a time when formal employment is deteriorating in terms of volume and real wages. This has led to a quantitative and qualitative deterioration in the medical benefits provided by the social security systems, and hence, greater demand on public services by population groups that at other times would have been covered by social security.

This deficit in economic resources, often accompanied by inefficiency and little flexibility in the allocation of resources to priority programs or problems, is reflected in several ways:

- in Nicaragua, whose health expenditure fell from 4.8% of GDP in 1987 to 2.7% in 1991, service output (medical and dental consultations, hospital discharges, monitoring, tests) fell between 1990 and 1991; the exception was care during childbirth, which increased;

- in Ecuador problems arose in the implementation of the vaccination plan due to the country's failure to meet its obligations to the revolving fund; the crisis in the Municipality of Guayaquil resulted in a deterioration in sanitation services, with a subsequent increase in urban rabies; and the suspension of external support to the program for malaria control in early 1992 led to a lack of inputs and medicine for the program, which may have had an influence on the increase in complications and mortality from the disease;

- Colombia is experiencing difficulties in the application of its new Constitution, especially the social rights components due to a lack of resources and regulations, having postponed the creation of the new Ministry of the Environment; in several countries the lack of budgeting and the total dependency of the EPI on external assistance have created serious difficulties for the implementation of the program once the donation begins to decrease;

- the Dominican Republic is experiencing difficulties with the supply of ORS, drugs for ARI, and canine vaccines.

Several countries have experienced a hospital crisis because of budget cuts;

- 40% of the hospital equipment in Peru is out of order;

- in Argentina budget austerity with respect to public expenditure, together with the development of MERCOSUR, has favored programs directly linked with subregional integration (quality control in food and drugs, medical technology) at the expense of health care programs;

- in Panama the economic crisis slashed the number of social security beneficiaries from 63% to 48% of the total population in the period 1987-1991, and the social security system ceased to provide drugs to nonmember patients in the integrated hospitals.

Several countries, during this time of budget constraints, are disbursing or requesting loans from external financing agencies, in order to obtain the funding that will enable them to strengthen, maintain, or expand their basic health services; notable for the sums involved are Chile, Ecuador, and Venezuela.

One indicator of the problems connected with service delivery is the growing increase, in percentage terms, in the category of salaries, wages, and fees in the total budget. Year by year this percentage is rising in virtually all the countries, in some cases reaching values of over 80%. In the midst of cutbacks in fiscal spending this means that the sums allocated to inputs, maintenance, procurement, food, and drugs are being reduced, with a consequent deterioration in the quantity and quality of services. Another indicator is how well the public sector attracts the work force, especially physicians. The numbers are shrinking, with health workers moving to other subsectors, especially the private sector and in some countries, growing emigration by professionals.

A major aspect of current health policies in many countries of the Region is the reform of the State. This process began in the second half of the 1980s, with some of its results becoming more visible in the first half of the 1990s. The objective of the reforms was to address the problem of the financial deficit of the public sector, the unwieldy bureaucracy of the administrative apparatus, the inadequate capacity to respond to social demands, and the weakening of the political system and the democratic structure.

The reforms encompass various dimensions (administrative, fiscal, policy, legal, economic, social, and cultural) and extend to all branches of government (Executive, Legislative, Judicial) and public institutions (the educational system, the health care system, the electoral authorities, state enterprises). They are the instruments for the transformation of the nature of the State as well as its functions.

The countries can be classified into two groups: those that have advanced in a more comprehensive plan of reform (Argentina, Chile, Colombia, Costa Rica, Mexico) and those that have applied some measures in response to the adjustment programs and are on the road toward launching comprehensive reforms (Bolivia, Brazil, Ecuador, Honduras, Jamaica, Panama, Peru, the Dominican Republic, Uruguay, and Venezuela). Some of the consequences of the reform of the State are: a reduction in social expenditure, the progressive transfer of public services and state enterprises to the private sector, the elimination of state monopolies, the redefinition of the public investment program, and the rationalization of public sector employment policies.

In the field of health, the reform of the State and the adjustment policies converge to further weaken sectoral structures already undermined by the constant turnover of sectoral authorities. Frequent changes in the sector's highest authority constitute a serious obstacle to the implementation of government policies and programs and,

moreover, explain why sectoral plans often become an expression of intentions that are never carried out. The average length of tenure for the Ministers of Health of the Region in the last ten years has been 1 year and 9 months.

This institutional weakness is reinforced by the creation of institutional structures external to the ministries for the application of policies targeted toward lower-income groups. These policies are implemented through social investment funds, social emergency funds, and social compensation programs that usually channel resources for the social sectors through external nongovernmental organizations. This has produced budget constraints in the Ministries of Health insofar as the domestic and external resources allocated to these programs are not handled by the ministries. NGOs are capturing a good part of the international cooperation because of their supposedly more efficient allocation of resources.

Finally, within the reorganization of the State, the relative importance of the sectors within the State has been redefined and the power relationships within the cabinet modified. The decision-making power of the ministries of finance, economy, and planning have been enhanced; these ministries have been given greater responsibility in the design of the adjustment policies and the reform of the State. In other cases special commissions have been created with direct links to President. In both modalities, the hub of decision-making has been outside the institutions of the social sector. Furthermore, the new structures created within the framework of the social investment funds and social compensation programs are dependencies of other agencies such as the Office of the President, the Ministry of the Interior, or the Ministry of Economy.

A special case is that of Bolivia, where the reform process has led to the creation of a "super-ministry" called the Ministry of Human Development, which includes Health, Education, Urban Affairs, and Rural Development among its secretariats. One of the consequences for health is that the multisectoral regionalization process alters the current geographic structure of the health districts and also the centralization.

Health policies in the 1990s (decentralization, targeting, privatization) have been extensions of the prevailing global policies in the economic and social sphere. This means that in most of the countries of the Region the discussions surrounding the new role of the State in health and private sector participation has been critical. There is widespread debate about whether the privatization process should include the social areas, and health in particular, or whether it should be confined basically to state enterprises. Although the controversy continues, in practice it can be seen that, while the participation of private health care providers (with respect to both independent practitioners and health care enterprises) is not new, the nature of their participation is presently being modified in total accord with the changes that are likely to occur with respect the new functions of the State.

The reform of the State, as a comprehensive strategy, assigns special importance to strengthening State's regulatory function at the expense of its role as a direct provider of services. Given the backdrop of reduced public expenditure and a deterioration in the working conditions of the public health sector, the conditions have been created for greater private sector participation in health.

Different strategies have been utilized toward this end. In some cases, the policy has been one of omission, while in others, policies to redefine the public-private ratio in the sector have crystallized in the adoption of instruments and the introduction of innovative administrative mechanisms. Some of these are presented below.

The first is the promotion of health care provider companies through a variety of measures (price deregulation, shifting of demand, streamlining of administrative transactions), as well as the creation of health insurance companies, institutions that mediate between users and service providers. The most well-known case of this phenomenon is the creation of the ISAPRES in Chile in mid-1980s, which was made possible by shifting the demand of the salaried sectors, who by law must contribute a fixed percentage of their income to the social security system. Another important example of shifting of demand is the case of Group Medicine in Brazil, through which private institutions financed by the beneficiaries themselves are created. Another modality for incorporating private institutions into the health services is the use of private services for the subsidiary areas of hospitals: laundry, kitchen, security, laboratories. These are small companies. In some countries it has been suggested that cooperatives be formed by the very workers of the public sector who, having availed themselves of the benefits of early retirement, can sell their services to the various institutions of the sector. In this same vein, but in the field of the technical and medical services, we find the administrative cooperatives for medical services, in which the State, retaining ownership of the infrastructure, grants the use of the property for exploitation. Such is the case of the Medical Cooperatives of Costa Rica, which administer the facilities of the Costa Rican Social Security Fund (CCSS). A variation on this modality is "shared risk", through which public sector institutions offer private institutions the opportunity to house their physicians' offices and other necessary equipment in dependencies of the Ministry of Health as a way of combatting the lack of equipment and deterioration of services.

Finally, several countries (Chile, Colombia, and Mexico) are engaged in the preparation of a package of basic benefits and activities in health that will give the Ministry greater regulatory powers over the institutions of the sector, both public and private. This will make it possible, in theory, to rationalize and control spending and improve the quality of services. The price of the "market basket" or basic health package—a set of health care, disease prevention, and health promotion activities—will be calculated by the state regulatory, in this case the ministries of health, and, owing to the compulsory nature of the laws, can serve as the point of entry to the system. That

is, it can be offered by both public and private providers in an attempt to facilitate access and universal services for the population.

It is interesting to analyze Costa Rica's experience to date. In 1992 this country launched the Project for the Reform of the Health Sector. The basic elements of this reform were: sectoral leadership by the Ministry of Public Health; transfer of the health services to the social security system; increased decentralization.

The Ministry of Public Health has encountered serious obstacles to assuming leadership, for two reasons: the first is related to legal aspects, since current legislation does not permit an approach that differentiates between health promotion, disease prevention, assistance, and rehabilitation; and the second lies in the absence of effective instruments for the coordination of the various institutions of the sector.

Finally, the reform process in the United States of America must be mentioned, whose impact will spread beyond its borders. By the mid-1980s, some of this country's states had already begun to draft proposals for health reform, culminating in 1993 with the current administration's reform proposal. It is too early to envision what changes will be adopted, since the Health Care Reform Plan presented by the President to Congress is still under review. To summarize, the reform plan presented to Congress contains the following key elements: an extensive and comprehensive package of benefits, greater competition among providers under state regulation, transparency and financial reorganization of the companies, cost containment, quality control, subsidies for those segments of the population that lack the financial capacity to access health care, and employer participation in the financing.

The advances in implementing the "Healthy People 2000" plan in the United States of America in 1992 should also be mentioned. Congress incorporated the objectives of this proposal into the federal legislation and also linked activities supported with funds from the states to the fulfillment of the goals of this plan.

2. Decentralization

The Government of Argentina has taken up decentralization and the affirmation of federalization as a basic strategy for the modernization of the State. Within this context, it has issued a Decree on the Self-Managed Decentralized Public Hospital, which promotes public sector competitiveness by incorporating the sector into the flow of financing of the social security system. In support of the proposed decentralization a national and provincial movement has been launched to bolster local managerial capacity through the application of strategic approaches in the planning and administration of services.

In Bolivia, local health systems are called health districts. In 1989 the National Health Plan was formulated, with decentralization one of the principal lines of action. The establishment of health districts based on primary health care began in 1982 with the execution of the Comprehensive Plan of Activities; in 1987 these activities were intensified, giving rise to the actual operation of the districts. In June 1993, by ministerial resolution, administrative units were created for the organization, development, and operation of the health districts at the federal and regional level. The country's health care model has now been defined; it includes three models of care, based on the geographical and cultural diversity of the Bolivian population. Eighty-nine health districts are being organized on the basis of these models.

In Brazil, the new National Constitution and the legislation, agreements, and ministerial resolutions promote and facilitate the decentralization process. The Constitution defines decentralization and designates the municipalities the executors of the health services. In 1993 a set of regulations and procedures with regard to the decentralization of health services and activities was established through the Basic Operating Regulations.

In Canada the responsibility for the delivery of personal health care services falls under provincial and territorial jurisdictions, except for special groups that the responsibility of the Federal Government, Indian peoples living on reserves, and armed forces personnel. Financing is shared by the Federal and Provincial governments. The provincial governments, through regional health units, provide public health nursing programs, regulate drinking water and sewage collection systems, and inspect food service institutions. Provincial, regional and municipal health authorities manage primary health care services, provide safe water, and control communicable diseases. These activities are governed by local Boards of Health.

In Chile, decentralization has been accomplished mainly in primary care, with the transfer of the services offered by the health posts, health centers, and physician's offices to the municipalities. In some cases the local systems correspond to the provincial health services and in others, to municipalities or communes that function with entities that are decentralized technically and administratively. In recent years regional governments have been constituted with a regional health secretariat that works in support of the provincial services of the respective region.

In 1990, Law 10 was enacted in Colombia. This legislation decentralized the National Health System, transferring the operation of the health structures to the 1,017 existing municipalities. Care in the more high-tech hospitals remained the responsibility of the 32 departments. When municipalities have little technical and administrative capacity the departmental level is in charge of administering the local health systems; municipalities with a high degree of development assume the functions of the

departments. Large municipalities may have several local health systems. Decentralization has involved a heavy community participation component. Decree 1416 of 1990, which established the regulations under Law 10, laid the groundwork for the creation of the community participation committees, which serve as cooperation and surveillance units in approximately 4,000 health posts, health centers, and hospitals. The regulation, moreover, created the governing boards for hospital establishments, one-third of whose members are users, one-third health professionals, and one-third municipal and departmental authorities. The scheme of Law 10 of 1990 was ratified by the Constitution of 1991 and incorporated by Law 60 of 1993 into the general framework for the transfer of authority and resources to the territorial entities.

In Costa Rica, a decision was made in 1989 to establish the local health systems through a decree entitled "The Comprehensive Health Program in Costa Rica". This action was confirmed in the Sectoral Plan 1991-1994, which adopts the local health systems program as a basic strategy for the restructuring the of health care system. The local health systems have been organized through agreements and decrees, particularly the Institutional Strategic Plan of the CCSS. The local health systems fall under the administrative jurisdiction of the cantons. The trend observed thus far is toward regionalization, with a transfer of authority and responsibility in substantive areas without the corresponding allocation of human and financial resources.

Cuba has designated the municipalities as its local health systems, and the health care model is based on the family doctor and nurse. In 1993 12,000 family doctors served as the initial link in PHC; that is, 900 inhabitants per family doctor. There was little variation from province to province, with the figure ranging from 700 to 1,200 inhabitants per family doctor. The municipal level consists of the public health offices, which are administrative and financial dependencies of the municipal assemblies. There are 169 municipal health systems covering more than 10 million inhabitants.

In Ecuador, the Comprehensive Family and Community Health System (SAFIC/ local health systems) is a legal and operational mechanism that is highly important to the implementation of the local health systems. In 1992, the health areas were designated by executive decree as the basic level for the decentralized regional organization and operation of the services of the Ministry of Public Health. The local health systems correspond to the health areas. There are 197 health areas, with the cantons serving as the basis for their organization. In large cities, where the cantons are very populous, two or more health areas have been created. The Project for the Strengthening and Expansion of Basic Health Systems in Ecuador (FASBASE), financed by the World Bank, as well as a project financed by the Inter-American Development Bank include support for the development of local systems as a priority component. In 1993 the Manual on the Organization and Functions of the Health Areas of the Ministry of Public Health and the documents "Regionalized Health Services Systems" and "Capacity of the

Units and Health Areas" were approved. A key objective of the manual is maximizing the capabilities of primary care services. Thirty-three health areas are in the process of development, with a coverage of 1,650,000 inhabitants.

In the United States of America there are approximately 3,000 local health agencies that vary in size and responsibility. Some are controlled by local boards of health (by and large appointed, but with a few elected) while others have a director who reports to the local county commissioners or city officials. If there is no local health agency for an area, the state assumes responsibility for the local public services. Local health agencies exist for populations as small as 10,000 or, in the case of some large cities, well over 1 million. Local health agencies exist in counties that have both rural and urban populations. Several special initiatives have been taken to strengthen state and local health agencies. In 1991 an Assessment Protocol for Excellence in Public Health was developed for local health departments to enhance their organizational capacity and strengthen their leadership role in assessing and improving the health status of the community. Efforts to draw up local and state plans to implement the health objectives for the nation and develop model standards have also met with success at the local level.

In Guatemala, the country has been divided into eight regional health offices, corresponding to the eight regions of development. The health areas coincide with the country's departments, with the exception of the department of City of Guatemala, which includes three health areas, for a nationwide total of 10. The administrative reform process aimed at regionalization has been slow, grounded in temporary agreements and lacking the necessary decentralization. A serious problem is the high concentration of resources in the metropolitan area.

Honduras has a national law and a Law on Municipalities that facilitate the organization of the local health systems. In total, 17 local health systems are being organized in areas with a population of roughly 800,000 inhabitants.

In Mexico, the tactic of strengthening health jurisdictions was adopted. The first steps in the transformation of the system were State/Federation agreements, aimed at the efficient operation of state services and health jurisdictions. These agreements established a health care model characterized by decentralized services, enhanced regulatory and monitoring capability at the federal level, and state government participation in the coordination, operation, and definition of population areas. Public services at the local administrative level are coordinated by the health jurisdictions, which number approximately 210 for the country as a whole. At present, 136 jurisdictions are being developed, covering an estimated population of around 29 million inhabitants. Thirty-one jurisdictions were designated as demonstration and training areas.

In Nicaragua, the local health systems are known as "comprehensive local health systems" and correspond administratively to the departments. There are currently 19 comprehensive local health systems, coinciding with the departments and covering a population of 4,800,000 inhabitants.

In Panama, a project is being carried out with the IDB in support of decentralization, health care reform, and the strengthening of the network of services linked to the development of the local health systems.

In Paraguay, the redefinition of regionalization has been proposed to make each health regional unit coincide with a department and each local unit with a district. In one health region an attempt was made to establish a local health system, but difficulties arose.

In Peru, the decentralization process is backed by the Constitution and the laws governing the transformation of the State and the creation of regional governments. Local health systems have been organized under the name "comprehensive health development zones" (ZONADIS). Support for the ZONADIS is included in the projects financed by the Inter-American Development Bank and the World Bank. It is anticipated that in the immediate future there will be one ZONADIS in each of the health subregions of the country.

Venezuela is divided into 23 federative entities, which include 22 states and a Federal District. The country has a total of 268 municipalities, with 23 health regions and 128 health districts. Of the 23 federative units, 17 have a pilot plan for the development of the local health systems, and of the 128 health districts, 20 are in the process of reorganizing as local health systems.

In the English-speaking Caribbean countries the Colonial administering power left behind a basic framework for local health systems. The Conference of Ministers of Health has approved the Caribbean Goals and Targets for the Caribbean Cooperation in Health (CCH) and has specifically agreed to "increase the operating capacity in all Caribbean Countries, to deliver efficient and effective health care to the total population emphasizing the local health systems approach". One of the most difficult challenges facing the small states of the Caribbean is the need to introduce some form of decentralization.

Antigua and Barbuda agreed to the Primary Health Care thrust. Barbuda, with responsibility for its own affairs, can be described as a model local health system. Health Committees exist in some areas of the country, working closely with the local health team and identifying health, social, and other problems that may affect their community.

Barbados is divided into a number of "catchment areas" or geographical units. Each catchment area is served by a polyclinic. The criteria for selecting the location of polyclinics were the size of the population, accessibility using the country's common means of transport, the socioeconomic characteristics of the population, the concentration of the population—adjacent to densely populated areas—availability of utilities, and stage of development.

The island of Dominica is divided into seven health districts, each with well-defined boundaries. Each health district delivers services to a well-defined population through a network of clinics. This health care system links satellite clinics to the main health center and to the national referral hospital. Its operation is supported by the Health Information System and a referral system that includes the provision of transportation for patients and health team members, telephone communication links, and procedures for patient referral, continuity of care, and feedback.

In the context of Saint Vincent and the Grenadines, the term "District Health Team Approach" has been preferred to "Local Health Systems". However, they are essentially synonymous in both theory and practice. Each District Health Team incorporates a number of Health Committees that operate at the clinic or village level.

3. Community Participation

In the early 1980s, discussions about the theory and practice of community participation in health began to take place in Latin America. The development of a new concept, community participation (PS), was proposed, whose broader purpose is to call together and involve all players from the various sectors, state institutions, and nongovernmental organizations in the transformation of society for the attainment of equity in health and social well-being.

In most of the countries community participation is a formal priority in health policies. In Bolivia, Chile, Colombia, Costa Rica, Mexico, and Peru national agencies have been established in the Ministries of Health to coordinate activities aimed at increasing community participation in health development. The Ministry of Health in Costa Rica, for example, is committed to "community development of health." In Bolivia, the "Law on Community Participation" represents an advance in the consolidation of new areas for participation by the population in negotiations and consensus-building in regard to health policies and social well-being.

In subregional workshops on community participation held in Mexico, Uruguay, and Venezuela in 1993 the concept of community participation was analyzed, as well as its influence and the form it took in primary health care. It was observed that participation in many cases was geared essentially toward the supply of resources and the

utilization of services. In less than 50% of the cases was it incorporated into planning in the various programs for primary care. In no country was the community involved in the design of the health services; it was assigned a significant role only in the implementation of Activities. The sector retained most of the control, channeling community participation in the direction approved by health workers.

An outstanding case is that of the United States of America, where, to assist communities in the planning and implementation of healthy cities projects, the American Public Health Association and the Centers for Disease Control (CDC) jointly prepared the publications *Healthy Communities 2000: Model Standards* and the *Guide to Implement Model Standards*.

In the context of the consolidation of democracies and the deterioration of the living conditions among large sectors of the population, the activities of traditional social movements converge with those of new movements that work in health-related areas. These movements constitute a pooling of social forces that act to bring about political and social change. Unlike political parties, they are characterized by flexible structures and organizational openness.

Within these social movements, three different groups can be distinguished in terms of their approach to health issues: the new movements (environmentalist, community, and women's groups), the traditional (unions), and finally, the social movements specifically oriented toward the field of health. In addition, a series of nongovernmental organizations (NGO) with concrete interests in the field of the health have emerged and taken root. These groups have different degrees of institutionalization, and the focus of their proposals and interests may vary. Some concentrate on expanding knowledge through research and disseminating this new knowledge; others function as molders of opinion or as pressure groups in these areas (reproductive health, AIDS, communicable disease prevention, consumer education). When involved in service delivery, these organizations are characterized by an ability to establish closer ties with the community and target resources. The intensity of the activity of such social movements in health varies and is sometimes disjointed over time; this means that there are significant information gaps in this regard.

At the same time environmentalism, which surfaced as a movement in the 1980s, has gained support for its positions from other movements. The activities of these groups include promoting community participation in conservation and environmental cleanup efforts, increasing public awareness about the impact of environmental degradation on health and the need for recycling and waste removal, issuing environmental alerts, and denouncing environmental abuses. Especially important are research and the education and training of human resources, which make possible the majority of the analyses and diagnostic studies on environmental problems.

The Region has a large number of "green" NGOs that target the environment. Moreover, three "green" parties (in Brazil, Mexico, and Uruguay) are recognized internationally. Environmentalist movements in Central America have played a key role in raising consciousness about the potential consequences of importing toxic waste for human health and the environment. Responding to the citizenry and pressure from these groups, the Central American presidents issued a declaration refusing to receive this type of product. Something similar happened in Argentina in 1992, when ecology groups discovered that the country was about to accept imports of waste from Europe. Their lobbying in the legislature led to a government ban on such imports and a bill to regulate the entry of toxic substances into the country.

Neighborhood, local, or community movements generate a significant proportion of society's initiatives in the field of health. Such initiatives generally center around specific demands related to the population's living conditions, in most cases referring to the lack of urban infrastructure in each neighborhood or geographical area. Some of these movements, such as those of Brazil, Chile and Venezuela, have played a relevant part in structuring demands in this area at the national level. With regard to health-related demands, mention should be made of the lobbying by these movements to improve the sanitation infrastructure (water supply, excreta disposal, refuse collection).

These movements, moreover, incorporate into their demands primary health care and the adaptation of services to their needs (for example, hours of operation, distribution of drugs, free services, health promotion). This has led them to work toward the establishment of these types of services in neighborhoods where they do not exist or have been deactivated. The crisis in the public hospitals has also produced these types of movements, which have lobbied for the continuity of these services.

Women's movements have worked in defense of health at the local, national, and regional levels. While these movements are basically urban, the demand for health care has also been present in rural women's movements in the Region. Examples of this can be found in the positions taken by the Women's Commission of the National Rural Commission in Chile and by the First Congress of Rural Women in Bolivia. Rural women in Chile are concerned specifically about the topic of health, demanding that the State guarantee the health of the people through a rural development plan that would reach the most neglected sectors. While demanding participation in the preparation of the plan, they also suggest the need to adapt it to rural conditions through a series of concrete measures. The demands of rural Bolivian women are more confined to the reproductive area; they have requested a ban on imports of substances for the sterilization of the rural population and have rejected all forms of birth control.

In several countries of the Region urban women have participated actively in neighborhood, local, or community movements; among the activities of these movements

primary health care occupies an important place, and women play a key role in promoting the activities of primary health care units and auxiliary tasks. In Brazil health is one of principal demands of these types of groups, and women handle the supply and operation of the health dispensaries. At the country level they have lobbied for legislation to promote women's health, including within this sphere activities related to contraception, sex education, the prevention of AIDS and sexually transmitted diseases, the treatment of specific gynecological problems, infertility, and menopause, as well as care during pregnancy, childbirth, and puerperium.

A traditional player like the union movement has taken part in the defense of the standard of living through classical economic demands (in the areas of wages and work) and the promotion of hygienic conditions and occupational health at the company level. It plays a secondary role in this area in work related to broader health promotion (campaigns against alcohol abuse and smoking). As a result of the transformations in the health systems of the Region, since the early 1990s the union movement has also participated in the collective defense of the sources of employment in the face of projects to privatize the social security system. In several countries of the Region (Argentina, Brazil, Chile, Colombia, Costa Rica, and Peru) health workers have assumed greater leadership in health sector policy, incorporating the defense of certain positions related to the structure of the sector into their specific demands with respect to working conditions and income. This participation has occurred among workers from the public and private sectors and the social security system. The professionals in the area have taken similar positions, participating actively in the debate and in lobbying activities.

4. International Assistance

International cooperation, or official development assistance (ODA), is comprised of the resources that the official agencies (States, local governments, autonomous government agencies) make available to the developing countries and the funding provided by multilateral institutions for to promote economic development and social well-being in those countries.

Worldwide, the total ODA, which includes both bilateral and multilateral sources, amounted to $56,000 million and $59,500 million in 1991, if the donations of the Arab countries are included. Of this total, $41,300 million, or roughly 70%, was granted by the member countries of the Development Assistance Committee (DAC) of the Organization for Economic Co-operation and Development (OECD).

A study conducted by the World Health Organization (WHO) in 1991 reveals that of the total bilateral ODA of $34,000 million in 1989, nearly $3,400 million, or 10%, was allocated to health.

The ODA is channeled to developing countries throughout the world. A examination of its geographical distribution in the period 1987-1991 shows that in 1991 $5,610 million in ODA was provided to the Americas. An study of ODA trends for the period 1987-1991 reveals that the amount of funds channeled toward the Americas has been fluctuating around the 10% figure.

Of a total of $5,610 million in ODA for the Americas in 1991, 16% was channeled toward the Non-Latin and Latin Caribbean, 40% to South America, 37% to Central America and Mexico, and 7% to unspecified areas.

During the period 1990-1991 the ODA in some countries increased substantially; this is true for Brazil, Colombia, Panama, Peru, Uruguay, Venezuela, and some countries of the Caribbean, such as Guyana, Suriname, and Trinidad and Tobago. This increase goes hand in hand with economic stabilization and poverty alleviation programs.

A significant fact about the redistribution of ODA within the Region is that the participation of recipients of external assistance has increased in subregions where it was formerly of little importance, as in the case of the Caribbean, the Southern Cone, and Mexico.

The ODA during these years was oriented toward bolstering policies of a social nature, such as the Social Compensation Programs that began with Bolivia in the late 1980s. Bolivia was one of the first countries to adopt such programs in order to cushion the impact of the economic restructuring measures on the most vulnerable groups in the population.

The World Bank, in its *World Development Report 1993: Investing in Health,* indicates that after rapidly increasing in the 1970s, health assistance stagnated in the following decade. In 1990 the total flow of assistance to the health sector came to $4,800 million. The report also mentions that assistance to health as a proportion of development assistance has decreased, despite the fact that donors continue to manifest their concern about health.

In addition, the ODA allocated to health in 1991 represents 14% of the total ODA for the Region of the Americas, with the proportion varying from country to country. In Mexico, Colombia, Saint Lucia, and Suriname the funds allocated to health amounted to 72%, 53%, 43%, and 61% of the total ODA, respectively, while in other countries, such as Paraguay, the Dominican Republic, Costa Rica, Peru, Nicaragua, and Uruguay, the ODA for health ranged from 1% to 5% of the total.

Of the $4,794 million in assistance to health in 1990, bilateral agencies provided 40%, followed by the specialized agencies of the United Nations, which channeled 33.4%. NGOs represented 17.3%.

Significantly, there was a trend toward the multilateralization of assistance to health, with this figure moving from 25% of the total ODA in 1980 to 40% in 1990, demonstrating the capacity of the United Nations system to mobilize resources in support of the sector.

The breakdown of ODA resources for health in 1990, by broad categories, was 71.7% for public health, 15.7% for population activities, 8.9% for research, and 3.7% for hospitals—figures that can be utilized as a reference for Latin America. Unfortunately, the dearth of information on the types of projects carried out makes it impossible to identify which priority health areas are being addressed in our Region.

The orientation of the ODA toward the different development activities is usually linked to the priorities set by the countries. However, it has been observed that while health is a major concern in many countries, it is not given the corresponding importance when national priorities are defined.

The main problems and obstacles that impact on the acquisition and mobilization of international cooperation resources for health in the Region are:

- limited negotiating capacity of the Ministries of Health in the definition of national priorities;

- limited or zero participation by the health sector in intersectoral activities at the national level;

- little ability to generate areas for consensus-building and participation with other public or private sector players in identifying priorities in health, which is very closed to the ministries;

- lack of knowledge about the cooperation available and the general processes involved in the mobilization of resources;

- lack of capacity in the Ministries of Health to design, carry out, supervise, report on, and evaluate projects.

In addition, there are other problems largely related to the above: high staff turnover, human resources that are unqualified for the planning and management of international cooperation, lack of ministerial support for the offices responsible for

international cooperation, inappropriate management of cooperation instruments and procedures, such as the monitoring of activities and evaluations.

5. Emergency Preparedness and Disaster Relief

The principal emergencies in the Region were related to natural disasters. During the period 1989-1993, several major natural disasters occurred in the countries of the Region. In the 20 countries for which information is available (see Annex) the total affected population is estimated at roughly 7 million, with deaths at slightly over 1,000.

The main types of natural disasters have been floods in 15 countries, earthquakes in 7, hurricanes in 3, volcanic eruptions and droughts in 2, a tidal wave in 1, and fires in 1. In terms of the numbers of people affected, the droughts and floods have caused the most harm. Peru was the country most affected by major natural disasters.

Economic damage from the earthquake in San Francisco was estimated at $8,000 million; in Costa Rica, the damage to the water and sewerage system was estimated at $18 million and damage to health facilities at $4 million; in Bolivia, the losses in terms of agriculture and livestock were estimated at $17 million; in Argentina, the losses in the agricultural sector due to the flooding of the Salado River in Buenos Aires Province in May 1993 were estimated at $400 million; in the United States of America, the floods of 1993 damaged almost 36,000 square miles, and 56,000 homes were damaged or destroyed, with costs estimated at $10,000 million; estimated losses due to the droughts in Peru range from $250 to $300 million, and these same droughts affected the food production of 1.1 million people; Bolivia's droughts in 1990 damaged an estimated $16 million in agricultural production; in 1993, damage to homes from the fires in California is estimated at $500 million, while in the southeastern United States of America, the damage from Hurricane Andrew in August 1992 is put at $18,000 million.

The countries of the Region are continuing to upgrade their disaster preparedness programs in the health sector. However, budget constraints represent a serious obstacle to the fulfillment of the objectives.

Significant advances have been made in the training of personnel for disaster management. Institutions of higher education have demonstrated an interest in promoting disaster preparedness, providing courses in health and engineering. Such programs are being developed in Brazil, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, and Peru.

International collaboration agreements in this area have been signed: between Chile and Peru for disasters that affect border populations; among Belize, Guatemala, and Mexico; and between Ecuador and Colombia.

In 1990 the heads of government of the Caribbean Community agreed to establish a mechanism for coordination and assistance among the CARICOM member countries in emergency situations and disasters, creating an agency in Barbados for this purpose in 1991.

The most important man-made disaster in the Region during this period occurred in Guadalajara, Mexico, in April 1992, with a series of underground gas explosions. An area of roughly 10 km^2, covering 20 city blocks, was damaged by the explosions. The accident left 250 dead and more than 1,100 homes and 450 businesses severely damaged or destroyed. The main cause of the explosions was the infiltration into the sewerage system of gasoline from a refinery pipe, together with the presence of liquified hexane gas from an oil factory. The high concentration of health services in Guadalajara permitted a rapid response to the emergency, resulting in low case-fatality among those hospitalized, despite the severity of their injuries.

Other major emergency situations not classifiable as natural disasters or disasters due to technical failure were: the Los Angeles riots in 1992, with 60 deaths, 16,000 affected people, and major damage to homes and businesses; the terrorist bombing in New York in 1993, with 6 deaths and 60,000 affected people; and the two anti-Israeli terrorist attacks in Buenos Aires, in March 1992 and July 1994, that left more than 100 dead, thousands of people affected, and major losses in property. All these emergency situations, moreover, had serious repercussions for the health services and a major impact on social cohesiveness, creating widespread insecurity among the populace.

6. Research and Technological Development in Health

In view of the marked difference in the amount of research and the use of technology between Canada and the United States of America and the other countries of the Region of the Americas, the analysis of this area has been limited to the countries of Latin America and the Caribbean.

In recent decades development policies in this field have been based on bolstering supply—that is, on support for projects and research groups, with little concern about establishing an institutional organization to facilitate the free flow of knowledge and technology among the entities involved in research, development, and the production of goods and services in health. In other words, there has been little concern about articulating the supply and demand of scientific and technical knowledge. The new scientific communities that have been created through these types of policies have to a great extent remained isolated from other sectors of society and highly or almost exclusively dependent on public funding (in Latin America this single source finances nearly 80% of all research and development expenditures).

The uniqueness of the current situation lies in the exhaustion of this model, largely due to cutbacks in its principal support, public financing. While the general trends can be outlined, it is very difficult to pin down what has actually been happening in science in Latin America and the Caribbean in the past three years because of the breadth and speed of the transformations that have occurred and the inadequacy of the existing scientific and technical information systems. These systems make it impossible to detect short-term changes in the research process; a waiting period is usually required to evaluate the impact of research on scientific output.

The different situations in each country is another complication. In some countries a rapid deterioration in the institutions and working conditions of investigators is clearly under way. In others, however, indications are that a greater diversity of sources and financing mechanisms is emerging—for example, the spread of the university enterprise consortium.

It is in this context of rapid change and growing challenges that some data on the characteristics of health research in Latin America and the Caribbean are presented below. These data are based on studies coordinated and supported by PAHO in six countries: Argentina, Brazil, Chile, Cuba, Mexico, and Venezuela, which account for nearly 90% of the Region's scientific output. The studies analyze the situation in the period immediately preceding the significant changes in public policy orientation in recent years, after analyzing the research projects in progress during the period 1987-1989. With respect to the projects in progress, 10,974 were identified in the countries studied from 1987 to 1989. A common feature is the predominance of individual analysis (biomedical and clinical research) versus global population analysis (public health research). In fact, while the projects classified as public health research represent nearly 18% of the total, biomedical projects account for 47% and clinical research 35%. Another common feature is the relative lack of development research, which represents nearly 5.7% of total projects, while basic research accounts for 25.3% and applied research 69%. In a certain way this profile corresponds to what has been observed in Latin America in other areas of science, with figures of 20%, 53%, and 27% for basic, applied, and development, respectively; in contrast, the seven most developed nations have figures of 15%, 25% and 60%. This is indicative of the relative lack of research devoted to technological innovation in the Region, an important bridge for articulation between the production and utilization of knowledge.

Multi- or interdisciplinarity, essential for the development of as complex and diversified a field as health, is not a feature of the projects of any of the countries examined. The dominance of the medical and biological sciences is virtually absolute, with 92% of the projects classified under these disciplines. This phenomenon is linked to the profession of the investigators in these projects, 62% of whom were doctors.

For the six countries studied, 77,925 articles published between 1979-1988 have been identified, 56% of which were published in journals of the author's country of residence (national journals) and 44% in international journals. Brazilian and Mexican authors account for nearly 60% of the total published articles: 33% and 26%, respectively. However, if the number of articles is correlated with the population of each country, Chile and Cuba are the most outstanding, with 650 and 590 articles/1,000,000 inhabitants, respectively, while the same figures for Brazil and Mexico are 180 and 250, respectively.

Of the 3,058 journals from throughout the world on the health sciences included in the U.S. National Library of Medicine's *Index Medicus 1992*, only 48 periodical publications, or 1.6%, are from Latin America and the Caribbean (Brazil 14, Mexico 11, Argentina 7, Chile 5, Puerto Rico and Venezuela 2, and 1 each for Costa Rica, Cuba, Guatemala, Jamaica, Panama, Peru, Uruguay). Of the Latin American journals indexed by the National Library of Medicine, 69% deal with clinical research; 25% with biomedical research; and a mere 6% with public health per se. These findings with respect to the predominant fields dealt with in periodicals in the region reflect those of a PAHO study of more than three thousand (3,341) articles published from 1988 to 1993 in a sample of 51 Latin American and Caribbean journals. This study indicated that the predominant research topics were communicable diseases (21.2%); biological sciences, biochemistry, microbiology, zoology, neuroscience, and related subjects, (15.3%); internal medicine and surgery (11.6%); pediatrics (10.7%); food and nutrition (8.4%); epidemiology (6.0%); and health services and systems (5.7%). The representation of articles in other areas designated a priority by the governments of the Region—for example, health promotion and lifestyles, health and the environment, women in health and development—was less than 5%.

In addition to *Index Medicus*, three other sources are used to measure the representation of Latin American and Caribbean research in international data bases: MEDLINE (the complete database from which *Index Medicus* is extracted; LILACS (Literatura Latinoamericana en Ciencias de la Salud), a database of bibliographic references and abstracts of health sciences publications in Latin America and the Caribbean; and the SeCS (Health Sciences Serials) database published also in LILACS/CD-ROM which lists the serial publications available in centers of the Latin American and Caribbean Health Sciences Information Network.

In a study of the status of scientific and technical communication in health in seven countries—Argentina, Brazil, Colombia, Costa Rica, Chile, Mexico, and Uruguay—these database sources were taken into account; from them it can be inferred that scientific and technical production in health, as published in serial publications, involves well over 500 titles.

Of the 544 scientific and technical journals in the seven countries studied, only 7% are indexed by *Index Medicus*, while LILACS covers approximately 80%. The basic reason for the difference between the number of titles included in *Index Medicus*/MEDLINE and LILACS is the objectives of the two databases. While MEDLINE is an international database created to analyze the most representative journals produced throughout the world, with emphasis on North American journals, LILACS was created as a bibliographic control tool for Latin American and Caribbean journals.

The editorial entities that sponsor the 448 LILACS titles originating in the seven countries selected for the above-mentioned study can be categorized by type: associations, including professional associations; private national and international organizations; private hospitals (226 titles, or 50.1% of the total); schools of medical science; university institutes; university hospitals and clinics (122 titles, or 27.4%); official organizations such as ministries of health, and international and intergovernmental agencies (55 titles, or 12.3%); medical publishers and medical laboratories (38 titles, or 8.5%); and national academies of medicine and science (7 titles, or 1.6%).

Notwithstanding that health research in Latin America is limited as a whole, the even greater weakness of public health research is significant. In view of the Region's numerous master's and doctoral programs in public health, whose explicit purpose is to train educators and investigators, this relative weakness is even more disturbing. In response to this concern, in 1993 PAHO carried out a study of the situation with respect to graduate level, master's degree, and doctoral programs in public health. A survey of 43 institutions in 9 countries was conducted, with data collected on 66 graduate-level programs. Some of the findings of the preliminary analysis of this data are presented below. It seems that in most cases, graduate-level programs correspond to an expansion in the scope of the courses in specialization. In other words, it is more a question of mechanisms to meet the needs of staff members of the health services of official entities (in some programs, the students are almost entirely doctors linked with the public service, as are the instructors). Research that seeks answers to day-to-day problems accounts almost entirely for the areas of investigation addressed by these programs. All of this seems to indicate that master's degrees and doctorates, in general, seek to satisfy the demands placed on the operation of the services, based on a conceptual framework that responds more to the administrative needs of the services than to the search for responses to problems arising from the theory and practice of public health.

In 1993 Latin America and the Caribbean represented a market of $16,000 for health products, including biologicals, drugs, medical devices, and hospital equipment. Medical devices alone, for example, cover more than 6,000 types of products, with a universe of over 100,000 products; the Latin American and Caribbean market for these products is nearly $3,000 million in a world market of more than $80,000 million. There is a dramatic shortage of medical devices in Latin America and the Caribbean.

Brazil spends $7.4 per capita for the purchase of medical devices and Mexico $5.5, while Canada allocates $82, Japan $94, Germany $108, and United States of America $140 per capita (*The Medical Device Industry Factbook 1993.* A Canon Communication, Inc. Publication. 1993, and *Report of the Brazilian Association* ABIMO. 1993).

The increase in the older population (the segment of the population that makes the greatest use of technology and requires greater health expenditure) as well as violence, accidents, and drug addiction, together with the introduction of high-cost technologies, such as heart surgery, kidney dialysis, and intensive care, are contributing to the concentration of resources and the increase in health expenditure. The population with functional problems derived from these causes is being served by public and private institutions that are supplied with technology that is to a good extent being produced in the Region. However, the service deficit in the face of this growing demand is very large, and the availability of technology and technological innovation remains low. Prostheses, orthotics, auxiliary means, and a variety of other technologies to facilitate life for this population group is becoming a key area of concern in the countries.

One highly important field is that of biologicals and biotechnology. The majority of the countries have established health institutes or similar organizations that perform a variety of functions with respect the regulation of biologicals, research and production, and education. The Region has university institutes and public and private centers and enterprises devoted to research and the production and marketing of biologicals, in addition to the new Biotechnology Centers and Enterprises. The Association of Mexican Biotechnology Enterprises has identified 64 firms, and its Brazilian counterpart has 33 members. Some other companies that are not members demonstrate the institutional potential that exists. Argentina, Brazil, and Cuba have a well-defined program of biotechnology. Mexico, Chile, Colombia, and Venezuela are giving priority to the development of this field, which will represent an immense world market in the near future. Nevertheless, they are considerably behind. Canada, with a population of less than 30 million, has purchased three times more technology in this area than the Latin American and Caribbean countries combined. This is a field that demands a regional policy to open up opportunities and enable this sector to compete.

CHAPTER IV

RESOURCES

1. Human Resources

Conditions in recent years have not favored the planning or redistribution of human resources to meet the needs arising out of policies and strategies for implementing primary health care and achieving health for all by the year 2000. This has been due partly to the fact that health authorities' terms of office are relatively short and the time needed for decisions relating to human resources to come to fruition is relatively long. Hence, the structural changes required to correct the principal problems are often postponed or considered impossible to implement in the prevailing political context.

An analysis of human resource trends in the health field in the Americas reveals that in recent years the availability of health professionals has increased in both absolute and relative terms, with few exceptions (see Annex). During this monitoring period the economic and social importance of the health sector has grown. This growth has been particularly marked in the area of human resources, as the health sector has shown a tendency to absorb ever-larger proportions of the total work force in the countries. In the early 1990s, the health sector employed 10% of the total employed work force in Canada, 8% in Cuba and the United States of America, 7% in Uruguay, 4% in Argentina and Brazil, and approximately 3% in Mexico and Costa Rica.

For at least the past three decades, employment in the health sector has grown at a faster pace than employment in other sectors of the economy. In the 1970s employment in the health sector increased at twice the rate of total employment in the formal urban economy of countries such as Brazil and the United States of America. In Canada, health employment increased 2.5 times more than total employment in the 1980s. In Mexico, while the economically active population (EAP) grew at an annual average rate of 3.9%, employment in public and semipublic health care establishments rose an average of 5% a year. In three countries for which time-series data are available the pattern of growth in health-sector employment has been different. In Canada, health employment grew steadily at a rate of 2.9% a year between 1975 and 1980 and 4.2% between 1980 and 1985, and the latter rate has been maintained over the last five years. However, in the other two countries, Brazil and the United States of America, the rate of growth in health-sector employment declined during the 1980s. In Brazil, the rate fell from 13% between 1970 and 1976 to 8.6% between 1976 and 1980, 6.2% between 1980 and 1984, and finally, 4.3% between 1984 and 1987. In the United States of America, hospital jobs increased at a rate of 5% a year in the 1970s, declined by 0.4% a year

during the period 1981-1985, and then rose again by 2.2% a year between 1985 and 1988. This pattern can probably be attributed to the adoption of cost-containment policies.

There is no indication that the geographical and social distribution of health workers has changed. Health professionals continue to be concentrated mainly in the most developed regions of the countries, with relatively few in rural and peripheral urban areas. This, of course, is not an isolated phenomenon but is closely related to the distribution of hospitals, other professionals, and available technology, and, above all, to the concentration of purchasing power in the large cities. Virtually all the countries have reported a concentration of health professionals in the principal urban centers and have indicated that existing human resource policies are not nearly forceful enough to reverse the situation.

Women outnumber men in the health work force in the Region and their ranks are increasing. For example, it is estimated that circa 1990 females made up 80% of the health work force in Brazil and 60% in Ecuador. It should be pointed out, however, that women are not evenly distributed across all occupational and professional categories. They are most heavily concentrated in the nursing professions. Nevertheless, the proportion of women in the fields of medicine and dentistry is growing. In all the countries for which data are available, a marked increase in female enrollment in and graduation from schools of medicine and dentistry has been noted, and in many cases women constitute half of all new students admitted to these schools. In addition, in most of the countries women currently make up about one third of the medical profession.

The number of physicians continued to grow in the Region. Almost all the countries have surpassed the target ratio of 10 physicians per 10,000 population, and in some the ratio is considerably higher. The latter countries have some of the highest concentrations of physicians in the world. In two extreme cases, the physician/population ratio is more than triple the target level: Cuba, with 43 physicians per 10,000 population, and Uruguay, with 36 per 10,000. Argentina, Canada, and the United States of America are close behind, with ratios of between 20 and 30 physicians per 10,000 population. There are some exceptions to this general increase in physicians; Haiti, Nicaragua, and Trinidad and Tobago, for example, have experienced a reduction, in either absolute or relative terms, in the number of physicians. Generally speaking, the poorest countries have the lowest physician/population ratios, although the numbers must be interpreted in light of prevailing health care models and the composition of the health care team. This explains, for example, the lower ratios observed in the non-Latin Caribbean countries, where health services are less physician-centered.

Information collected in the countries indicates that, in general, the trend toward professional specialization has continued. This phenomenon may be attributed to the

growth of technical and scientific knowledge, coupled with growing segmentation of labor markets, which has engendered a dynamic process in which specialists compete for the market segments with the greatest purchasing power. The use of specialists in situations that could be handled by general practitioners is, without a doubt, one of the factors that has contributed to the escalation of health care costs. The fact that the Government of the United States of America is now contemplating proposals that would encourage specialists to return to general practice as a cost containment strategy may have a significant impact in the countries of Latin America and the Caribbean. The relative proportion of specialists in Latin America is higher than might be expected. According to information provided by the countries, there are some, such as Mexico and Guatemala, that have low proportions of specialists. At the other extreme are countries such as the United States of America, in which more than 60% of physicians are specialists. In the southernmost countries in the Hemisphere, the proportions are similar to those in North America (excluding Mexico). In the other countries, between one-fourth and one-half of all physicians are specialists, and that proportion has remained more or less constant. Colombia is the country that has both the lowest number of recognized specialties and the lowest percentage of specialists. The United States of America is at the other end of the scale, with a large number of specialties and a high percentage of specialists. One significant finding is that Costa Rica, which has slightly over 4,000 physicians, has the largest number of recognized specialties.

As for the dental profession, there are marked differences in the concentrations of dentists in the countries of the Region of the Americas. Uruguay, for example, has 11.2 per 10,000 population, whereas Haiti has only 0.12 per 10,000. In the group of countries comprising Brazil, Canada, Colombia, Mexico, and the United States of America, the number is between 5 and 8 dentists per 10,000. An analysis of variations in the numbers of dentists available in the countries relative to 1990 reveals no clear trend. However, there was significant growth in the availability of these professionals in Bolivia, the Dominican Republic, and Ecuador.

Because restorative dental services continue to be paid for privately in most of the countries, the dental labor market has been quite vulnerable to the effects of the economic crisis and the impoverishment of some segments of the population.

In regard to nursing personnel, although there are some differences between the countries, in general the nursing work force in the Region of the Americas shares three main characteristics: first, it is predominately female; second, its structure is highly stratified; and third, it is employed almost exclusively in institutional settings. The combination of these characteristics makes nursing one of the most unique and complex of all the health professions to analyze. Taken together, the various categories of nursing personnel currently make up between 50% and 60%, on the average, of the total work

force employed in health care establishments in the countries of the Region. In most of the countries, close to 90% of all nursing personnel are female.

Regulation of the nursing profession varies substantially from country to country. In Canada and the United States of America, for example, where the profession is highly regulated, there are three categories of nursing personnel: registered graduate nurses; licensed practical or vocational nurses; and nurses' aides and other categories of personnel who have practical training but are not required to have a formal license to practice the profession. In the countries of Latin America, there is a clear distinction between "professional" nurses—graduate nurses who are regulated through the university system or professional associations—and the unregulated segment of the profession--nursing personnel with little formal training who make up the vast majority of the nursing staff of health care establishments.

In regard to the availability of nursing professionals in the Region, an analysis of the data reveals extreme disparities. The ratio of nursing professionals to the population ranges from 96 nurses per 10,000 in Canada and 88 nurses per 10,000 in the United States of America to fewer than 2 nurses per 10,000 in the countries of the Latin Caribbean. The highest ratios of professional nurses to physicians are seen in the English-speaking countries, where there are 2-4 nursing professionals for every physician. At the other extreme are the Southern Cone countries, which show ratios of approximately 1 nurse for every 5 physicians. The Andean countries are in the intermediate range, with approximately 1 nurse for every 2 physicians.

The training of health workers in the Region continues to take place in a mixed public/private system, with an almost equal number of institutions of both types. The duration of the courses of study in these schools varies considerably; within a single country physician training programs range in duration from 4 to 8 years. Some countries limit the number of students admitted to their institutions of higher learning, while others continue to follow policies of unlimited admission—although there are indications that the latter are beginning to reverse these policies and restrict enrollment.

One of the challenges facing Latin American academic institutions is how to update their training programs to keep pace with advances in the developed countries.

A general quantitative analysis shows that in the larger countries there was a decline in the training of physicians in the 1980s. The number of physicians trained fell slightly in the United States of America, decreased by almost one-third in Brazil, and dropped much more sharply in Argentina and Mexico. In the medium-size and small countries, for example Honduras, Chile, and Colombia, a different pattern was observed. In Honduras and Colombia, enrollment in schools of medicine, dentistry, and nursing has risen steadily. In Chile, enrollment in medical and nursing schools has also increased

slightly. The Chilean case is unusual in that for several years the number of nursing graduates exceeded the number of medical graduates. Nevertheless, if current trends continue, it is highly unlikely that the imbalance between the number of physicians and nurses can be corrected. This imbalance is particularly acute in Argentina, where fewer than 1,000 nurses are expected to graduate during the entire decade.

The number of medical schools has increased only slightly in recent years, although there are exceptions, such as Bolivia, where the number of schools rose from three to seven. In almost all the cases in which there was an increase in the number of institutions, it occurred primarily in the private sector. The public sector has been virtually paralyzed by the crisis. As for schools of nursing, their number increased slightly, a seemingly paradoxical trend, since the numbers of persons expressing interest in pursuing nursing studies has been declining.

2. Hospital Establishments

In Latin America and the Caribbean the availability of hospital beds in relation to population is quite variable (see Annex). In 1991 the greatest total availability was in countries of the Caribbean (with the exception of Haiti and the Dominican Republic), Argentina, and Uruguay, all of which had 4 or more beds per 1,000 population. Brazil and Chile fell into the intermediate range, with 3.5 and 3.2 beds per 1,000 population, respectively. The countries with limited availability (1.5 beds or less per 1,000 population) were Bolivia, Colombia, Honduras, Nicaragua, Paraguay, Peru, Haiti, and Mexico. The latter two have the lowest availability in the entire Region: 0.8 beds per 1,000 population. With regard to the trend of availability, the number of beds has remained relatively constant; in 1987 it was 1,05 million and in 1991 of 1,1 million. However, with the increase in population, the availability per 1,000 population has either remained the same or decreased, with few exceptions. Except in Costa Rica and some Caribbean island countries, hospital usage rates continue to be low, with occupancy rates of under 70% in general and under 50% in many cases.

In regard to the countries of North America, in 1990 the availability of beds in community hospitals in the United States of America was 3.8 per 1,000 population (16% less than in 1980), with an occupancy rate of 67%. In Canada, in 1991, the total number of hospital beds was 176,000 (169,000 public and 7,000 private), yielding an availability of 6.5 beds per 1,000 population.

As a result of the economic crisis that affected the Region during the 1980s, the countries have not been able to allocate the funds necessary to protect their investments in health care facilities, and as a result these facilities have deteriorated rapidly.

In the early 1990s, Latin America and the Caribbean had approximately 14,000 hospitals, with a total of 1.1 million beds. Some of the most notable aspects of the hospital situation in the Region are described below:

- according to studies carried out in public hospitals in Central America and the Andean Area, physical infrastructure has deteriorated markedly; approximately 50% of the equipment for health care delivery is out of service or in poor condition. The buildings in which health care establishments are housed exhibit the same degree of deterioration, and are 30-35 years old on average. The situation is assumed to be similar in the majority of the other countries of the Region;

- advanced technology is being acquired faster than training institutions can adapt their programs to provide technical and professional staff with the knowledge and skills required to operate and maintain the new equipment. This is especially the case in the areas of hospital engineering, clinical engineering, biomedical engineering, technology management, and the training of biomedical technicians;

- the countries do not have policies on the preservation and maintenance of physical infrastructure, and they lack the resources to ensure the implementation and enforcement of such policies. The sums allocated for preservation and maintenance activities is no more than 3.5% of the operating budgets of health care institutions in the most organized and developed countries, and in the majority of the other countries it is under 1%;

- the relative lack of development and organization of programs and services, especially those concerned with engineering and maintenance, coupled with their high degree of centralization and the lack of integration of their staff with the rest of the health care team, has created a situation in which maintenance programs are unable to adapt to the process of change within institutions and provide an adequate response to the demand for services. In addition, the deficient quantity and quality of technical and professional personnel has further complicated the management of programs and the delivery of services. In the aforementioned studies in Central America and the Andean Area, it was found that 75% of the personnel responsible for engineering and maintenance services had only empirical training, 19% had technical training, and 6% had professional training;

- one of the repercussions of the structural adjustment programs has been a shift of personnel from the public to the private sector, which has adversely affected

both the professional and technical fields. As a result, the public sector is losing its most highly qualified resources.

The information presented in the Annex shows the availability of hospital beds and their use. Because the criteria applied by the countries in the calculation of these data vary widely, the figures are not strictly comparable. In some cases the number of beds listed is for all types of hospitals (i.e., those operated by the Ministry of Health, the social security system, the public sector, and the private sector), whereas in other cases the data refers to specific establishments or a single subsector. In addition, it is not known whether the data refer to beds for critically ill patients only or also include beds occupied by chronically ill patients.

A survey of hospitals conducted in the Region—the results of which are still being tabulated—found that out of a group of 5,154 hospitals (with a total of 507,778 beds) that had submitted information to PAHO as of September 1993, 2,171 are public (42.1%), 2,016 are private (39%), 594 fall under social security systems (11.5%), 308 are operated by charitable organizations (6%), and 65 are military hospitals (1.3%).

According to data obtained from this survey of hospitals, 64.9% of the establishments have fewer than 70 beds. In some countries, such as Mexico, there are a number of private clinics with fewer than 10 beds. An indirect indicator of the quality of medical care being provided in the Region's hospitals is the finding that approximately 70% of the hospitals in the Region have fewer than 2 staff members per bed.

For the 6,193 hospitals that had submitted information as of December 1993, 60% reported that they offered no type of in-service training. There were also very few that indicated that they conducted clinical or technical research or monitoring of nosocomial infections.

3. Drugs and Biologicals

In recent years the ministries of health have been obliged to compete with the economic sector for leadership in matters relating to medicinal drugs. In the search for solutions to problems and the application of these solutions, the necessary multisectoral and multi-institutional approach has not been present; as a result, the comprehensiveness of the study of drug-related issues has been seriously threatened. In many cases, drugs have been dissociated from the health sector and have been treated as ordinary consumer goods.

Few Latin American countries have national commissions on drugs to support the design and implementation of policies and to seek solutions to problems that arise. Moreover, these commissions often lack the authority to enforce the actions they

recommend and thus, in most cases are simply figurehead bodies. Except in Argentina, Brazil, and Mexico, the pharmaceutical industry in the countries of Latin America continues to import more than 90% of the active ingredients used in drugs, and in some countries more than 50% of the finished products needed to meet national demand are also imported. Government production of drugs, where it occurs, accounts for only a small percentage of the national market. The pharmaceutical industry in the vast majority of the countries has little capacity to compete at the international level, despite the introduction of trade liberalization policies, and in many cases the growing volume of imports is proving detrimental to the development of the national industry. During the past four years, the number of pharmaceutical firms has not increased significantly.

In regard to the volume of pharmaceutical sales in the countries of Latin America and the Caribbean, Argentina, Brazil, and Mexico continue to hold the biggest share of the market. In 1992, these countries accounted for 70% of total sales, which amounted to $12,667 million. These three countries, however, do not have the highest per capita consumption. Grouping the countries in descending order according to per capita consumption, Barbados and Puerto Rico rank first, with per capital consumption of $100 annually, followed by Antigua, Argentina, Bahamas, Grenada, Saint Vincent and the Grenadines, Suriname, and Uruguay, at between $50 and $100; next are Belize, Dominica, Ecuador, Guyana, Mexico, Paraguay, and Trinidad and Tobago, at between $25 and $50; Brazil, Chile, Colombia, Cuba, the Dominican Republic, Jamaica, Peru, Venezuela and the countries of the Central American Isthmus, at between $5 and $25; and finally, Bolivia and Haiti, where annual per capita consumption is under $5.

Economic integration processes have called attention to the existing gap between the countries of the Region in regard to drug licensing, pharmacological criteria and standards, quality control, marketing, and quality monitoring in the post-marketing stage. Among the areas of greatest concern are the harmonization of standards and criteria for licensing, compliance with good manufacturing practices and the monitoring thereof, and implementation of quality control systems using a common standard. Action to achieve the harmonization of standards is taking place first at the subregional level, as a preliminary step toward regional harmonization. Each subregion is addressing this challenge in accordance with its technical and economic capabilities.

Another significant development has been the establishment of generic drug programs—albeit with varying degrees of progress and success—in countries such as Argentina, Brazil, Colombia, and Venezuela. The strategies applied by the governments of the countries include orienting the programs toward essential drugs, providing incentives to encourage physicians to prescribe generic rather than brand-name drugs, disseminating technical and scientific information about this group of products, and increasing awareness among physicians of the need to bear in mind when prescribing medication that cost is one of the factors that limits patients' access to drugs. These

efforts, however, have not been as successful as hoped. The ratio of generic drugs to brand-name drugs on the market has increased in only a few cases. Moreover, the presence of generic drugs on the market has not helped to lower drug costs to any great extent.

Given the disparities in drug legislation and regulatory systems (licensing, production, quality control, drug monitoring, and advertising), most of the countries have attempted to consolidate and harmonize the regulatory process by revising the existing legislation. In the majority of the countries the changes introduced have been limited to modifications in the structure of drug licensing offices. In countries such as Argentina and Colombia, however, changes have also been made in the structure and functioning of the offices that license other medical products, cosmetics, foods, and veterinary products, thus grouping all licensing functions under a single dependency of the Ministry of Health.

Drug licensing constitutes a fundamental strategy under the health policies of the countries. At present, for new pharmaceutical products, the laws of the countries provide for a licensing process that ranges from 1 month (Peru) to 18 months (Colombia and Venezuela). For the licensing of drugs similar to products already on the market, the process takes from 15 days (Peru) to 12 months (Bolivia). The cost of drug licensing, including the cost of product analysis, varies from country to country in the Region, ranging from $8.70 in El Salvador to $3,000 in Argentina, for new products. In this latter country, the licensing of similar products and the relicensing of products costs approximately $1,000.

The difference between the number of drugs licensed and the number actually available on the market is significant. According to one study conducted in early 1993, except in Nicaragua, many more drugs are licensed than are sold on the market. In Venezuela, for example, more than 27,000 products have been licensed, but only 5,000 are on the market. The situation in Nicaragua, where 1,800 products have been licensed but some 3,000 are being offered for sale, can be attributed to measures instituted in 1991, including the authorization of entry of all pharmaceutical products into the country, deregulation, and the elimination of the drug licensing office. While that office has since been reopened, it has not been possible to rectify all the effects of the earlier deregulation and decontrol measures.

Pharmaceutical quality control needs to be strengthened in the majority of the countries, particularly in the post-marketing phase. One study found that the number of drug inspectors has not changed in recent years, yet the various policies and programs implemented by the governments, such as generic drug programs and policies to liberalize the market, are continually increasing the need for inspection. With regard to the establishment of standards to govern manufacturing practices, only 23% of the Latin

American countries have officially adopted such guidelines. In the vast majority of cases, drug manufacturing takes place without any government intervention. The Certification Scheme on the Quality of Pharmaceutical Products Moving in International Commerce, developed by WHO, has been formally accepted by almost all the countries, but in practice it is not being applied in most cases.

One of the major obstacles to effective quality control is the limited operating capacity of government laboratories, which prevents them from fully carrying out this function. Efforts continue to be made to improve the Latin American Network of Government Quality Control Laboratories, which was restructured in 1991. As part of this restructuring, regulatory agencies were incorporated into the Network as a means of expanding their sphere of activity and endowing them with greater decision-making authority in regard to plans and programs.

Drug pricing policies and the ways in which drugs are marketed and paid for vary from country to country in the Region. Few countries have price controls on drugs. In fact, the general trend has been toward the adoption of policies aimed at the deregulation of prices. Such policies have been a decisive factor in price increases over the past four years. In many cases prices have risen more than 100% (Chile, Ecuador, Honduras, Peru, and Venezuela).

Because administrative decentralization processes entail a decline in the purchasing power of national government agencies, drug procurement is taking place at the central level in fewer and fewer countries. As a result, the advantages of large-scale purchasing are lost. One strategy employed to offset this effect is the development of cooperatives and the use of joint negotiations aimed at boosting the purchasing power of the participating institutions (Colombia and Guatemala). Another measure adopted to optimize spending on drugs, particularly in the public sector, is the purchase of generic drugs. Another trend that has been noted is the institution of copayment schemes, under which the patient pays part of the cost of drugs. In some countries community pharmacies or drug stores have been established. These are usually private ventures, administered by community organizations or joint commissions made up of community members and representatives of the institution they serve.

In the countries' efforts to contain spending on drugs, due importance has not always been attached to key factors such as the efficiency of the supply system, the availability of valid alternatives for both consumer and supplier, and the prices and profit margins of the entities involved in the drug marketing chain.

In the social security institutions, various drug supply systems have been tried, although in most cases these "systems" have consisted almost entirely of list of products, generally containing superior active ingredients and pharmaceutical preparations than

those available through ministries of health. One of the strategies employed by social security institutions is the exclusive use of generic drugs, except for a few brand-name products not available in generic form. Although drugs are generally provided free-of-charge to those covered by social security, more and more countries are instituting copayment systems or partial reimbursement systems based on special considerations, such as whether the patient belongs to certain risk groups, the type of pharmaceutical product, and the prevalence of certain pathologies.

Among the most important actions taken by the countries to promote the rational use of drugs is the preparation or updating of lists of essential, or basic, drugs. A growing number of countries have also published corresponding drug formularies, which has facilitated the dissemination of scientific and technical information on the essential drugs included on the lists and has helped to encourage their prescription and use as the drugs of choice.

According to a study carried out by PAHO in 1992 in 13 countries (Bolivia, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and Venezuela), the number of active ingredients on essential drug lists ranges from 173 (the Dominican Republic) to 363 (Colombia), while the number of products ranges from 220 (Panama) to 995 (Chile). Efforts to disseminate information and promote the use of essential drug lists and formularies have been directed at some or all public-sector institutions in the countries; private-sector institutions are not in any way obliged to adhere to these lists.

Self-medication is a widespread practice among the population of the Region. The major factors cited to explain this phenomenon are the low coverage of the health services, the cost of health care, the prescription of drugs by non-professionals, the ease of obtaining drugs without a prescription, and traditional cultural attitudes.

The largest vaccine producers in the world are located in the Region of the Americas. The biggest production laboratories in the Region are in the United States of America and Canada. These laboratories produce vaccines of guaranteed quality and have a production capacity that exceeds the demand in each country, both for vaccines used in routine immunization programs and other important vaccines used in public health activities. The United States of America also has an exceptional quality control system, in addition to adequate infrastructure for research and the development of new vaccines.

No other country in the Americas has yet developed the technological capability for producing all the vaccines included under the Expanded Program on Immunization (EPI) at the national level. Some countries, however, are able to produce their own supplies of some of the EPI vaccines, as well as other vaccines, such as the recombinant

hepatitis B vaccine and the vaccines for yellow fever, human and canine rabies, and meningococcal meningitis caused by *N. meningitidis* serogroups A, C, and B.

The vast majority of vaccine-producing laboratories in the Region are public or depend indirectly on government support. None of the transnational laboratories produce vaccines for human use, and the few private laboratories that exist are very small and have no impact on the market.

Table 2 presents information on the production of bacterial and viral vaccines in the countries of Latin America and the Caribbean. Most of the producing laboratories gear their production almost exclusively toward the national market, where the demand for vaccines is generally low. Because it is essential for vaccine manufacturers to produce large-volume lots of vaccine to cut costs, in any given year there may be a surplus of vaccines, which affects the data on annual volume of vaccine production. Fluctuations in production levels, therefore, are not necessarily due to operational problems.

Although the Region has the productive capacity to produce sufficient quantities of some vaccines to meet regional needs (for example, BCG, rabies vaccine for human and canine use, and yellow fever vaccine), the producing laboratories' lack of infrastructure for marketing and sales has meant that the volume of vaccines for intraregional export has remained very small, with the demand being met through direct imports from European, Japanese, or North American laboratories or through the PAHO Revolving Fund.

Some Latin American and Caribbean countries are making large investments in new production facilities and modern equipment with a view to achieving self-sufficiency in the production of essential vaccines.

Cuba is the country that has invested most heavily in the construction of institutes and laboratories to conduct biological and technological research in the area of biological products. Its centers for the production of immunobiologicals have modern equipment and facilities that meet international standards for good manufacturing practices. A bivalent vaccine against meningococcal meningitis caused by *N. meningitidis* serogroups B and C and a recombinant vaccine against hepatitis B were recently developed in this country. Moreover, Cuba is the only country in Latin America to have organized a specific center for the development and production of laboratory animals, which are essential in vaccine production and quality control. Many laboratories in the Region have problems maintaining adequate supplies of high-quality laboratory animals, which hinders production and quality control operations.

Table 2: Vaccine-Producing Countries in Latin America and the Caribbean, 1992

Country	Bacterial vaccines	Viral vaccines
Argentina	BCG, DPT, DT, TT	Human and canine rabies
Bolivia	BCG, DPT, DT, TT	Human and canine rabies
Brasil	BCG, DPT, DT, TT *N. meningitidis* A/B/C	Measles, yellow fever, human and canine rabies
Chile	DPT, DT	Human and canine rabies
Colombia	BCG, DPT, DT, TT	Human and canine rabies
Cuba	BCG, DPT, DT, TT *N. meningitidis* B/C, hepatitis B	Hepatitis B, recombinant
Dominican Rep.	BCG, DPT, DT, TT	Human and canine rabies
Ecuador	Liquid BCG, Freeze-dried BCG; DPT, DT, TT	Human and canine rabies
Mexico	BCG, DPT, DT, TT	Measles, poliomyelitis (oral), human and canine rabies
Peru	BCG, DPT, DT, TT	Human and canine rabies
Uruguay	BCG, DPT, DT, TT	Human and canine rabies
Venezuela	DPT, TT	Human and canine rabies

In 1985 Brazil established an official program for the achievement of national self-sufficiency in the production of immunobiologicals. Initial investments under this program were aimed at modernizing the laboratories that produce antivenins. More recently, investments have been made in facilities for the production of other biologicals, especially bacterial vaccines. The Brazilian program is expected to lead to self-sufficiency in the production of almost all EPI vaccines, with the exception of the polio vaccine, which will continue to be imported in part in the viral concentrate form, although formulation will still be done locally.

Although Mexico has no formal self-sufficiency program, it is also making investments aimed at modernizing the state-run institutions involved in vaccine production. It is the only country that produces all the EPI vaccines. Nevertheless, for a variety of reasons, the country's vaccine production has not yet reached sufficient levels to meet internal demand. With the investment being made in production facilities, equipment, and more modern technology, however, Mexico is expected to achieve self-sufficiency in the near future, at least with regard to the production of the vaccines considered essential under the immunization program.

Chile achieved the ability to meet national demand for production of DPT vaccine and its components some time ago. Venezuela achieved self-sufficiency in DPT production in 1993. Argentina, Colombia, Ecuador, and Uruguay also have vaccine-producing institutions. Some countries, including the Dominican Republic and Peru, are producing rabies vaccine using the Fuenzalida-Palacios technique.

Some of the laboratories in the Region are taking steps to comply with WHO requirements and other international standards for the production of vaccines for human use. Many of these laboratories, however, do not yet meet internationally established requirements.

Many of the vaccine-producing countries have organized a quality control system at the national level which includes vaccine licensing and regulation offices and, in some cases, a national quality control laboratory. Other countries, unfortunately, have not established any quality control system, which makes it difficult to certify the quality of the vaccines produced in their laboratories.

With regard to vaccine development, two events are of particular significance. One is the establishment of the Children's Vaccine Initiative (CVI), in which WHO, UNICEF, UNDP, the Rockefeller Foundation, and the World Bank are participating. This initiative, which originated at the World Summit for Children held in New York in 1990, grew out of recognition of the importance of improving existing vaccines and developing new ones. The second important event is the establishment of the Regional System for Vaccine Development in Latin America and the Caribbean (SIREVA), which is coordinating the development, production, and quality control of vaccines in the Americas within the framework of technical cooperation among countries.

4. National Spending on Health and Health-Sector Financing in Latin America and the Caribbean

The economic crisis of the 1980s and the programs for stabilization and structural adjustment developed in response to it, have had a profound impact on the current configuration of spending and financing in the health sector of the countries of Latin

America and the Caribbean. This section discusses the most noteworthy aspects of the level and composition of national health expenditure and health-sector financing in these countries in the early 1990s.

Public spending on health includes: (1) central government expenditure through the ministries of public health and transfers to other governmental public health institutions that have their own budgets; (2) health expenditure by state, provincial, and municipal governments; and (3) health expenditure by social security systems or government health care systems. Direct private spending on health includes out-of-pocket expenditures by individuals and families for the purchase of goods and services related to health care: general and specialized health care services (informal as well as formal), drugs, laboratory analyses, prostheses, and clinical and hospital services.

The estimates presented in the Annex can be considered moderate. They do not include the amounts spent by individuals on the purchase of private health insurance or the premiums paid for prepaid health care plans. Neither do they take account of institutional spending on group health services or restricted-access services for employees of certain companies and public and private institutions, such the armed forces, state-run firms, and private companies with their own health services, production cooperatives that offer health services and programs, multinational companies that provide health insurance for high-level staff members, and international organizations that provide health care coverage for their staff members. The estimates, in addition, do not include contributions by national and foreign institutions to nongovernmental organizations, those of private volunteer organizations, or funds for health services collected by charitable and religious organizations.

Two of the most salient features of the estimates of national health expenditure in the countries of Latin America and the Caribbean are: the high proportion of GDP spent on health, and the large amount of private spending as a proportion of total national health expenditure.

In 1990, national health expenditure in 34 countries of Latin America and the Caribbean averaged 5.7% of GDP. The variation in the proportion of GDP spent on health is quite broad—ranging from less than 3.5% in countries such as Guatemala, Haiti, Paraguay, Peru, and Trinidad and Tobago to around 9% in Argentina, Costa Rica, and Panama (see Annex).

Health expenditure as a proportion of the regional GDP of the countries of Latin America and the Caribbean (5.7%) is lower than the average in the industrialized countries, which spend around 7.8% of GDP on health. However, in three Latin American countries—Argentina, Costa Rica, and Panama—the proportion of GDP spent on health is higher than the average in industrialized countries.

Total spending on health-related goods and services in Latin America and the Caribbean amounted to $51,500 million (1988 dollars). The four largest economies in the region—Argentina, Brazil, Mexico, and Venezuela—which have close to 60% of the total regional population, accounted for nearly 80% of this total.

A positive, though weak, correlation exists between per capita income in the countries and the proportion of GDP spent on health. In the countries of the region with a per capita income of under $1,500 per year, the proportion of GDP spent on health is about half of that spent by countries in which annual per capita income exceeds $3,000 (4.8% versus 7.9%). For countries with a per capita income of between $1,500 and $3,000, national spending on health represents 5.2% of GDP. The countries that spend the largest proportions of GDP on health—over 8%—are those with social security systems that provide broad health coverage: Argentina, Costa Rica, and Panama.

The disparities in per capita income and the proportion of GDP spent on health are reflected in major differences in the levels of per capita health expenditure in the various countries. Per capita spending ranges from $9 in the case of Haiti, to more than $500 in the Bahamas, and more than $1,000 in the Caiman Islands. In 1990, the average per capita expenditure on health in the countries of Latin America and the Caribbean with a per capita income of under $1,000 was approximately one-tenth the level of spending in countries with a per capita income of over $3,000. Countries in which per capita income is less than $1,500 a year spend less than $55 per capita annually on health. Countries with an annual per capita income of between $1,500 and $3,000 spend around $115 per capita a year on health. The rest of the countries, in which per capita income exceeds $3,000 a year, spend an average of nearly $300 per capita on health.

In the countries of Latin America and the Caribbean, direct private expenditure by households accounts for the largest proportion of national spending on health. In 1990, this out-of-pocket private spending comprised around 57% of national spending on health and approximately 3.2% of GDP, whereas public-sector spending constituted 43% of national health expenditure and represented around 2.5% of GDP. In that year, per capita private spending on health was estimated at around $69 per year. There are marked differences between the countries in terms of the composition of national health expenditure (see HCA, 1994 edition). In general, no clear relationship can be distinguished between income level in the countries and the composition of national spending on health in terms of the public-private mix. In some countries private expenditure accounts for around one-third of total national spending on health; in others, private expenditure represents more than three-fourths of the total. The first group is made up of countries with broad-coverage social security programs, such as Costa Rica, and countries with national health systems patterned after the British system, such as some of the countries of the non-Latin Caribbean: Antigua, Montserrat, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines. The second group consists

of low- and moderate-income countries: Bolivia, the Dominican Republic, El Salvador, Mexico, Peru, and Venezuela.

A breakdown of public expenditure into the proportions that correspond to the central, state, provincial, and local governments and social security systems reveals that social security expenditures make up the largest component of public spending. These expenditures account for more than 50% of public spending, while central government expenditures represent 28%, and spending by state, provincial, and local governments account for the rest. As a proportion of total national spending (public and private) on health, social security expenditures represent around 24% (approximately 1.1% of GDP). Central government spending accounts for approximately 12.2% of total national spending (less than 1% of GDP). The ratio of central government spending to private spending indicates that, for each dollar spent by the central government, households spend about $4.60 of their own money.

Estimates of the proportion of private spending on health in the countries of the Region contradict the general perception among health authorities and planners in the Region that private spending plays a marginal role. This is due in part to the fact that estimates of national health expenditure have tended to include only spending on health by the central government through the ministries of public health and by national social security systems. In some cases, an attempt has been made to estimate the value of health expenditure through private insurance, but it has generally been assumed that only a small segment of the population has access to private health services.

The data on the importance of each of these components as a proportion of national health expenditure reveal the relative volumes of resources available through the various health subsectors in the countries. The small share of central government spending as a proportion of total national health expenditure suggests that the role of government in financing the delivery of health-related goods and services is limited. Most of the national resources spent on health are monies spent directly by individuals or households or funds spent through social security institutions, over which the central government has little control with respect to the allocation and use of resources.

The data on the composition of national spending suggests that inefficiency and inequity in national health expenditure go beyond government institutions (central and decentralized) and social security systems. Such problems also arise in private spending by families for the purchase of health-related goods and services, which is the largest component of national expenditure.

Charging for services (i.e., health-related goods and services) is the principal means of financing national health expenditure in the countries of the Region, representing 56% of total spending. Most of this proportion is accounted for by out-of-

pocket payments made directly by consumers to health care providers. The small proportion attributable to charges for services rendered by public institutions, ministries of health, and social security systems suggests that most of the resources spent by households go to individual private providers. The increasing prevalence of private practice among the professional health care personnel of government and social security health institutions and the proliferation of private physicians' offices, clinics, pharmacies, and medical laboratories in the Region during the past decade are developments that would tend to support this hypothesis.

Public revenues, which the central governments spend directly or transfer to social security systems, together with funds corresponding to local governments or collected through general revenues, supply 21.3% of the total funding for the health sector. More than half of these resources (55%) are used to fund health institutions of the central government and 34% to fund decentralized public institutions administered by local governments, while 11% are transferred to social security systems.

Income taxes and mandatory contributions to social security systems or national health systems through payroll taxes account for 18.7% of total health-sector financing; 40% of these resources come from contributions made by insured workers and the remaining 60% from employer contributions. Other sources of financing include loans and donations, interest income, and capital gains, which account for the remaining 3.9%.

The estimates of the level and trends of health expenditure by central governments include the central government resources that are channeled through the ministries of health and other governmental public health institutions operating under their own budgets. They also include transfers from the central governments to some social welfare agencies, university hospitals, specialized medical centers, special health institutions or programs (nutrition, population, family planning, malaria, tuberculosis), and transfers to health institutions or foundations engaged in the delivery of services or in biomedical research. In some countries, these transfers are provided for in the budget of the ministry of health and in others they are considered transfers to governmental institutions that have their own budgets, including transfers from the central government to the social security system.

Transfers from central governments to social security systems were significant in a small number of countries: Brazil, Costa Rica, the Dominican Republic, Panama, and Venezuela.

Among the countries of Latin America and the Caribbean there are major differences in the ratio of central government health expenditure corresponding to the ministries of health as a percentage of GDP and per capita central government health expenditure. Assuming that the differences in these indicators reflect differences in the

quantity and quality of the public services to which the population has access, they illustrate the tremendous inequalities that exist among the countries of Latin America and the Caribbean. In 1990 the proportion of central government health spending corresponding to the ministries of health represented less than 1% of GDP in Argentina, Bolivia, Brazil, Colombia, El Salvador, Mexico, Paraguay, and Peru, while it accounted for more than 3% in Nicaragua and several countries of the non-Latin Caribbean, including Antigua, Barbados, Guyana, Montserrat, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago.

The countries in which the ministry of health's share of government expenditure is a small proportion of GDP can be divided into two groups. The first consists of countries that have per capita income of over $1,500 and social security systems that cover more than 50% of the population—Argentina, Costa Rica, and Mexico. In these countries, government expenditure through the ministry represents between 0.4 and 1.2% of GDP. In most of them per capita government expenditure on health through the ministry is under $15 per year. The second group is made up of countries with low per capita income (under $1,500) and smaller social security systems that cover less than 30% of the population—Bolivia, the Dominican Republic, Ecuador, El Salvador, Haiti, and Peru, in which government expenditure through the ministry of health is a small percentage of GDP (between 0.3 and 1.6%). The level of per capita government expenditure through the ministry in these countries is $3.50 in Bolivia and Haiti and less than $12 in the Dominican Republic, Ecuador, El Salvador, and Peru. In the rest of the countries of the Region, the ministry share of central government spending on health as a proportion of GDP ranges between 1.8% and 3.0%. In 1990, 88% of the population of Latin America and the Caribbean lived in countries in which per capita government health expenditure through the ministry of health was less than $20 a year. In these countries the amount of central government expenditure channeled through the ministries and other public health institutions was not sufficient to cover the cost of a basic package of health services.

The problem of insufficient direct government spending on health is less acute in countries such as Argentina, Costa Rica, and, to a lesser extent, Mexico, in which the social security system provides health services to a large proportion of the population. The problem is more severe in countries such as Bolivia, Peru, El Salvador, and Guatemala, in which not only is central government health spending through the ministry low, but the coverage of the social security system is limited. In these countries a significant portion of the meager central government expenditure on health is devoted to the delivery of curative hospital care, which leaves little for basic public health and primary health care programs.

In 1990, private household spending on health averaged 57% of the total national spending on health and approximately 3.2% of GDP (around $69 in 1988 dollars). The

rate of household spending on health as a proportion of GDP ranges from less than 2.0% in Guatemala, Jamaica, Peru, and Saint Lucia to more than 5.0% in Argentina, Brazil, Ecuador, Panama, and Venezuela.

The countries in which private spending accounts for a fairly small proportion of total national spending on health are characterized by a relatively extensive national public health system, patterned after the British National Health System (such as the countries of the non-Latin Caribbean), or countries with social security systems that provide broad coverage.

Between 1980 and 1990, total central government expenditure, including transfers to social security systems, as a proportion of GDP increased from 1.1% to 1.5%. In 1990 per capita government expenditure on health in the Region averaged $30, representing an increase of approximately 15% with respect to the 1980 figure (approximately $25). The economic recovery that began in the late 1980s and has continued into the early 1990s has had a positive impact, permitting renewed growth of central government spending on health.

The variations observed in government expenditure on health as a proportion of GDP and as a proportion of total government expenditure between 1980 and 1990 were not homogeneous in all the countries of Latin America and the Caribbean. The evolution of these indicators of central government spending on health seem to reflect differences in health financing policies and government spending in these countries over the past decade. In 16 of the 33 countries included in the analysis, an increase in government health expenditure as a proportion of total government expenditure was noted; in Nicaragua the proportion remained constant; and in the rest of the countries it declined.

The group in which a reduction in government health expenditure as a percentage of total government expenditure was observed includes the countries of the Region that were most severely affected by the economic crisis (Bolivia, Nicaragua, and Peru) and the countries that applied drastic structural adjustment programs and made significant changes in their development strategies (Bolivia, Chile, Jamaica, Mexico, and Nicaragua).

The increases in levels of central government spending on health would seem to contradict the widespread notion that government health services deteriorated during the periods of crisis and adjustment of the mid-1980s. One possible explanation for this apparent contradiction is that economic recovery has had a differential impact in terms of the recovery of the quality of public services. The data presented here suggest that the increase in the levels of health expenditure have benefited social security institutions the most. The resources allocated to the primary and secondary levels of the health services systems, particularly the health services provided through the ministries of

health, have not been sufficient to appreciably improve the quality of the services offered at these levels of care.

The increases in the levels of central government health spending, in both absolute terms and as a proportion of GDP, have been absorbed mainly by the social security systems, to which the central governments have transferred funds. Between 1980 and 1990 the share of government health expenditure corresponding to the ministries of health, as a proportion of GDP and as a proportion of total government spending on health, fell substantially. Whereas total government health spending as a proportion of GDP increased from 1.1% to 1.5%, health spending through the ministries as a proportion of GDP declined from 0.8% to 0.7%. Of the total government spending on health, the share corresponding to the ministries decreased from 76% in 1980 to less than 50% in 1990. The reduction in the health ministries' share as a proportion of total government spending on health and as a percentage of GDP signified a slight reduction, between 1980 and 1990, in the levels of total central government expenditure channeled through the ministries of health and other public health institutions. The share corresponding to the ministries of health declined from $6,800 million in 1980 to $6,500 million in 1990. In per capita terms, the ministry share decreased by approximately 22%; in other words, the amount spent by the central government through the ministry of health declined from around $19 per capita in 1980 to $15 in 1990.

In the countries in which there have been increases in the health ministry's share of government health expenditure as a proportion of GDP, these increases have resulted in significant increases in per capita expenditure on health. This has occurred mainly in the countries of the non-Latin Caribbean. In several of the countries of Latin America, reductions in the magnitude of health expenditure through the ministry of health has resulted in substantial reductions in the levels of per capita health expenditure.

The main findings of the analysis of health expenditure and health financing in the countries of Latin America and the Caribbean can be summarized as follows:

- the countries spend a substantial proportion of national resources on the purchase of health-related goods and services: an average of 5.7% of GDP. This represents an average per capita level of health expenditure of approximately $122 per year (in 1988 dollars) for these countries as a group. Individually, the per capita expenditure of the countries with the lowest per capita income (approximately $50 per year)—Haiti, Bolivia, the Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, and Paraguay—is one-fourth the level of per capita expenditure ($200) in the countries with the highest per capita income in Latin America and the Caribbean—Argentina and Venezuela; Antigua and Barbuda, Bahamas, Barbados, Montserrat, Saint Kitts and Nevis, Trinidad and Tobago;

- in 1990 private household expenditure—i.e., direct out-of-pocket spending by individuals and families—for the purchase of health-related goods and services accounted for the largest proportion of total national health expenditure: around 57% of total spending on health in the Latin American and Caribbean countries. Public spending on health—which includes central government expenditure through the ministries of health and transfers from the central government to governmental public health institutions; health expenditure by state, provincial, and municipal governments; and spending on health care programs administered by social security systems—accounted for 43% of national health expenditure;

- in the mid-1980s, stabilization and structural adjustment programs resulted in a contraction of the levels of total central government spending on health in the countries. As economic growth has resumed, these levels have risen again. Most of the increases in central government resources have been channeled into the financing of social security systems. A smaller proportion has been allocated to strengthening the operating capacity of the ministries of health and other public health institutions. Between 1980 and 1990, total spending on health by the central governments, including transfers to social security systems, increased in per capita terms from $25 to $30. However, central government spending through the ministries of health and other public health institutions fell from $19 per capita in 1980 to $15 in 1990;

- the level of per capita income in the countries and the way in which the health sector is structured are the main determinants of the level of national spending on health goods and services. The countries with social security systems that provide broad coverage (Argentina, Costa Rica, and Panama) are those that report the highest levels of health expenditure as a proportion of GDP (over 8% of GDP).

CHAPTER V

SUSTAINABLE DEVELOPMENT, ENVIRONMENT, AND HEALTH

The preservation and protection of health and the environment are at the core of the new development model proposed at the United Nations Conference on Environment and Development (UNCED), held in Rio de Janeiro in June 1992. Expressing the wishes of their respective peoples, the government leaders in attendance at this, the most important meeting on the environment ever held, agreed to form a new world partnership and make a commitment to sustainable development. Such a commitment implies, inter alia, the establishment of a world economy that is more equitable and efficient and that takes into account the growing interdependence of nations. In order to contribute to the efforts aimed at achieving the objectives agreed upon at the Conference, PAHO launched a project of cooperation with the countries for the implementation of national plans for sustainable development, with particular emphasis on health issues. Two pilot projects were initiated in 1993, one in Barbados and the other in Guatemala.

The countries of the Americas differ markedly in terms of their economic development processes as well as their social and cultural characteristics. At one extreme are the most developed countries, Canada and the United States of America, which have followed development models based on an economy of scale that is mainly consumer-oriented and dependent on the production of goods and services. At the other extreme are the less developed countries, whose agricultural economies depend in large measure on the exploitation of natural resources. Both types of economic models can have severe repercussions for the environment—the former, through heavy consumption, which requires large amounts of energy and is detrimental to the environment, especially air quality; and the latter, through the contamination of water resources, soil exhaustion, and depletion of non-renewable natural resources.

The harmonious and sustainable development proposed at UNCED requires appropriate management of resources and the establishment of effective, efficient, fair, and responsible relations between public and private groups with divergent interests. This, in turn, requires equality of rights and opportunities, acceptance of the concept of environmental economy, and broad participation by all sectors in policy formulation and implementation.

For the Americas in particular, sustainable development implies appropriate management of the Region's tremendous biodiversity, inasmuch as the impoverishment of biodiversity as a result of certain human activities poses a grave threat to human development and the ecological balance of the planet.

The rapidly developing field of biotechnology promises to make an important contribution to health by increasing food production and food security through biological farming practices and ecogenetic knowledge, improved techniques for the treatment of water for public supply, non-polluting processes and technologies (known as "clean" technologies), procurement of new raw materials, sustainable methods for forest management, as well as appropriate methods for treating hazardous waste. Biotechnology will also create opportunities for the establishment of new partnerships between countries that are rich in biological and genetic resources but lack the specialized knowledge and investment funds needed and countries that have the necessary financial and technological resources to use these biological riches in such a way as to foster sustainable development.

Increasingly, urbanization processes, the depletion of natural resources, and technological change are having an impact, both direct and indirect, on human health. For the health sector, meeting the need for in-depth research on environmental degradation and its effects on the health of living things represents an enormous challenge. In order to better define the relationship between health and the environment in development processes and on this basis formulate new strategies for action and fulfill the commitments made at UNCED, the Pan American Health Organization, with the collaboration of other agencies of the United Nations system and international cooperation, financing, and development agencies, is coordinating the organization of a Pan American conference on the importance of health and the environment in development. This conference is scheduled for 1995.

In several of the countries, secretariats, bureaus, or ministries with responsibility for environmental policy-making were established a number of years ago. Others, such as Argentina, Bolivia, Ecuador, and Uruguay, have created them in recent years.

Health and environmental sanitation policies, which for many years were concerned essentially with the provision of drinking water and adequate sanitation services, have encompassed other issues, such as urban air pollution, contamination of coastal areas, improper use of toxic products, and the increasing number of risks in the work environment. More recently, attention has turned to the problems associated with the phenomena of global warming, damage to the ozone layer (especially in the countries of the southern hemisphere), and deforestation and decertification. As a result of these adverse factors, the Region, and the entire planet, may be losing the ability to provide the most basic elements needed for health and well-being: safe food, drinking water, and air. Nevertheless, only rarely is health accorded high priority in development policies and plans, and rarely is it an important point in environmental programs, despite the fact that the quality of the environment and the characteristics of the development process have a decisive impact on health.

Before the cholera epidemic, almost all the countries of Latin America and the Caribbean were focusing their attention more on the quantity of water available for human use than on the quality of that water. Studies have shown that less than 25% of community water supply systems in Latin America and the Caribbean are being reliably and continuously disinfected. With the resurgence of cholera, interest has centered on water quality--something that should have occurred long ago. Many countries have been motivated to implement special programs for the surveillance and control of water quality as part of the broad environmental health interventions they have carried out to prevent and control cholera. These measures have made it possible to reduce the incidence not only of cholera but of other water-borne diseases as well. The most impressive results are those achieved in Chile, where more than 98% of the population has access to a water supply that is reliably and continuously disinfected. In addition, cholera prevention measures aimed at promoting environmental health and educating the population have reduced the incidence of typhoid fever by 80% and the number of cases of hepatitis A by 60%.

Other countries have also reported a lower incidence of other diarrheal diseases and lower mortality from this cause, thanks to the implementation of cholera-prevention measures. Since 1991, almost all the countries in the Region have expanded their surveillance and monitoring activities and have instituted better control of the quality of drinking water, particularly through disinfection of water supply systems. In order to reduce the threat of water-borne diseases, Mexico has invested more than $50 million in a program for the disinfection of all community water supply systems, and Peru has installed more than 200 disinfection systems since it was first hit by the cholera epidemic.

Due to its economic crisis, Cuba is experiencing serious problems because supplies of chlorine and sulfate for water treatment have been drastically reduced—by 43% and 50%, respectively, in 1993 with respect to the previous year.

The use of wastewater or water contaminated with waste or excreta for the irrigation of agricultural products that are generally consumed raw poses a serious health hazard. Studies conducted by the Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) of PAHO in Peru between 1985 and 1990 demonstrated the existence of a direct correlation between the presence of pathogenic microorganisms in such products and the pollution level of the water used to irrigate them and keep them fresh during the journey from farm to market.

In numerous areas of the Region, owing to the limited availability of water and the growing need for food production, water from urban sewerage systems continues to be used for the irrigation of crops. It is estimated that in Latin America more than 220,000 hectares are being irrigated with wastewater. This uncontrolled use of untreated

wastewater for irrigation and other purposes, as has been reported in several countries, poses sanitary risks, since such water generally contains large amounts of pathogenic microbes and may also be contaminated by heavy metals and other toxic substances. At the same time, it should be noted that municipal wastewater can be a valuable resource and play an important role in the management of water resources, given the economic value of recycled water for irrigation, hydroponics, and aquaculture, although few countries have made any significant progress in developing these areas. In general, it is essential that all the countries adopt the necessary measures to ensure that their water recycling practices are in accord with sanitary standards.

In the coastal areas, it has been determined that contamination of the fresh and salt water bodies that provide seafood is an important factor in the transmission of cholera, typhoid fever, paratyphoid fever, hepatitis, gastroenteritis, and paragonimiasis. Few coastal municipalities treat their wastewater before draining it into the sea, and there are few marine outfalls to transport the wastewater to sufficient depths or dilute it enough through well-constructed diffusers so as to eliminate the health hazards. Almost all the wastewater is discharged a short distance from the coast, which leads to heavy contamination of beaches and fishing areas. Because the wastewater contains nutrients that can increase the production of biomass, it is not uncommon to see boats fishing for a variety of marine life in the most highly contaminated waters. Oil spills that occur as a result of tanker accidents are another source of contamination of coastal waters and beaches and can have a severe adverse impact on local flora and fauna. In addition to the ecological damage they cause, such spills involve substantial economic costs, not only for clean-up operations but also as a result of losses in income from sources such as tourism.

Contamination of groundwater also directly threatens the health of large segments of the population of Latin America and the Caribbean. Throughout the Region of the Americas wells are used as a source of water supply. It has been estimated that more than 50% of communities in Latin America and the Caribbean depend on groundwater as their only water source. Although they generally depend less on such sources, large municipal areas frequently have numerous underground wells (often several hundred) connected directly to the supply system in order to increase water supply. In some cases, microbial contamination is a result of faulty well construction; in others, it may be due to rare geological conditions. Most often, however, health hazards come from the chemical contamination of groundwater.

Concentrations of nitrates higher than the limit recommended by the WHO guidelines for drinking water quality are commonly due to the large numbers of poorly designed and constructed septic tanks found in urban areas, as well as to the excessive use of fertilizers for agricultural production in rural areas. The contamination of underground sources by leachate from sanitary landfills is a source of growing concern

in Latin America and the Caribbean. Industrial and commercial solvents, for example, chlorinated ethenes and alkanes, as well as benzene, chlorobenzene, and alkylbenzene, are also frequently cited as groundwater contaminants. In addition, leaks from gasoline tanks or underground pipelines with insufficient safeguards are a major cause of groundwater contamination, especially in metropolitan areas. They also pose the danger of explosion, as occurred in Guadalajara, Mexico, in 1992. Although groundwater contaminants have not been widely studied in either Latin America or the Caribbean, a limited number of studies and sporadic testing have indicated that anthropogenic contamination of groundwater is increasing. However, health organizations and water supply and environmental health agencies in the countries continue to assign little priority to the protection of this vital resource.

A critical problem in all the countries is the discharge of untreated wastewater; the problem is especially acute in large metropolitan areas, given the large volumes of wastewater they produce. Fewer than 10% of the sewerage systems have treatment plants, and only 5%-10% of the wastewater collected receives treatment, which is frequently inadequate. In 1990 it was estimated that a total volume of 350m^3/sec of untreated wastewater was disposed of improperly, including 300m^3/sec discharged into watercourses, lakes, estuaries, and the oceans. Water pollution is another serious problem in and around both large metropolitan areas and small and medium-sized cities. Industrial wastewater frequently contains contaminants such as heavy metals and chemical substances that are even more toxic than those commonly found in domestic wastewater.

Several countries have launched initiatives aimed at ensuring the appropriate treatment of wastewater. The Buenos Aires metropolitan area, for example, has constructed some 20 treatment plants and is in the process of building 15 more. Nevertheless, the wastewater generated by some 6 million people in Argentina continues to be discharged without treatment.

In Mexico a significant effort has been made to control the discharge of wastewater into the Lerma-Chapala-Santiago river basin, where 16 treatment plants have been built and put into operation. Mexico is also programming projects for the treatment of 60,000 liters per second of wastewater in stabilization ponds and has established standards for the sanitary use of the wastewater processed in these ponds.

Another important factor contributing to the contamination of surface and ground water is municipal solid waste, especially when it is disposed of without any control in open-air dumps, bodies of water, or poorly designed, constructed, and managed landfills.

Wastewater in small cities also contributes to the contamination of water resources, and although it does not produce the sort of macroproblems encountered in

larger cities, it does harm surface and underground watercourses, which are the water supply for many large and small cities.

While most of the countries of the Americas have regulations pertaining to the discharge of industrial waste, noncompliance with these regulations is common, and industrial pollution therefore remains a critical factor in the degradation of the environment in some countries. Few countries fully enforce their regulations and in many cases enforcement occurs only in specific cases.

In Latin America, as well as in other places, urban population growth has been accompanied by a tremendous increase in the concentration of atmospheric pollutants. These concentrations depend not only on the number of people, but also on the density of housing units, the spacing of industrial emitters of pollution, patterns of energy consumption, the number of motor vehicles in use, and the relative importance of the various sources of pollution, as well as the location and physical and climatic conditions of the cities. Other than some simple parameters, such as population growth and urbanization, patterns of heavy energy consumption and motor vehicle use tend to be good indicators of increased air pollution levels.

Air pollution in the urban environment, caused by industrial activities, motor vehicles, the generation of electricity, and service industries, is a mixture of carbon monoxide (CO), sulfur dioxide (SO_2), suspended particulates (SP), nitrogen oxides (O_xN), and several volatile organic compounds (VOC). In addition, O_xN and VOCs are involved in photochemical reactions that produce ozone (O_3), a very reactive and toxic substance. In the countries of Latin America and the Caribbean, where tetraethyl lead is added to gasoline, the air also contains fine particulates of lead (Pb). Since late 1992 a fuel containing less than 0.07 g/L of lead has been available in Mexico; however, this product accounts for only a small proportion of total gasoline consumption (see the section on heavy metals).

Although no detailed survey of motor vehicle emissions has been carried out in the cities of Latin America, the trend observed in emissions at the national level and the increase in the number of vehicle registrations in recent years suggests that these emissions are now the principal source of air pollution in most of the Latin American cities. They are responsible, especially, for pollutants such as CO, O_xN, ozone, and, to a lesser extent, suspended particulate matter.

The cities with the biggest air pollution problems in Latin America are: São Paulo, Rio de Janeiro, and Belo Horizonte (Brazil); Santiago (Chile); Bogota (Colombia); Mexico City, Guadalajara, and Monterrey (Mexico); Lima and Callao (Peru); and Caracas (Venezuela). Altogether, the population of these cities numbers some 81 million inhabitants and represents 26.5% of the urban population of Latin America and 19% of

the total. Air pollution is also a problem in several other cities, although to a somewhat lesser degree; the total population of these cities is 119 million, which is 39% of the urban population of Latin America. They are: the metropolitan area of Buenos Aires (Argentina); Salvador and Brasilia (Brazil); Medellin and Cali (Colombia); Havana (Cuba); Santo Domingo (Dominican Republic); Guayaquil (Ecuador); Guatemala (Guatemala); Puebla, San Luis Potosi, and Aguascalientes (Mexico); Montevideo (Uruguay); and Maracaibo and Valencia (Venezuela).

Several international studies have highlighted the potential adverse effects that exposure to air pollution can have on health, principal among them: excessive mortality (attributed to the concentration of SO_2 and SP), increased frequency of respiratory symptoms and disorders (SO_2, PS, O_3), cardiovascular problems and neurotransmission defects (CO), and neurophysiological disorders in children and anemia (Pb). These effects are more pronounced in high-risk populations, which include young children, the elderly, and people with a history of respiratory or heart disease.

In several Latin American cities, the mean concentration of air pollutants in outdoor air is higher than the safe limits indicated by the WHO guidelines. The urban areas most affected by anthropogenic pollution are the São Paulo metropolitan area, the city of Santiago, and the Mexico City metropolitan area. In these cities, the average annual levels of suspended particulates have fluctuated between 100 and 400 $\mu g/m^3$ in recent years (the range recommended by WHO is from 60 to 90 $\mu g/m^3$). No great reduction or sustained downward trend in the concentrations of particulate matter has been noted in any of these cities. In the case of sulfur dioxide, levels have ranged between 16 and 160 $\mu g/m^3$ and in general, a downward trend has been observed. Most of the available data on SO_2 indicate that mean concentrations are below the levels recommended in the WHO guidelines (40-60 $\mu g/m^3$).

In Mexico City, hourly concentrations of ozone often reach 600 $\mu g/m^3$, and levels of up to 850-900 $\mu g/m^3$ have been registered. Ozone levels frequently exceed the national air quality standard of 110 parts per billion (ppb)—that is, 220 $\mu g/m^3$—during 80-100 hours a month. In 1991, the Mexican ozone standard was exceeded during 300 days. Concentrations of NO_2 in Mexico City were also higher than the WHO-recommended limit (400 $\mu g/m^3$) between 1986 and 1991, but not more than five days each year.

In Brazil, the use of alcohol as a motor vehicle fuel has prompted considerable debate on the possible health risks of this practice to the population, since the two types of alcohol used (ethanol and methanol) release hydrocarbons and formaldehyde into the air when burned. Environmental impact studies and further research are needed in order to establish the acceptable exposure levels for the population and determine the adverse effects that these substances may have on those who are exposed.

Studies of the acute effects of air pollution on the health of schoolchildren in Mexico City and Santiago show that they are at very high relative risk of developing cough, nocturnal respiratory difficulties, and hoarseness, as well as school absenteeism (after making the corresponding adjustment for confounding variables). Several studies conducted in Santiago, Mexico City, and Cubatão, Brazil, have also established a link between air pollution and obstructive bronchial disease in children. The study carried out in Santiago showed much higher relative risk of diseases of the upper respiratory tract—including rhinopharyngitis, pharyngitis, laryngitis, and upper respiratory infections—in the study population than in the control population living in a community called Los Andes. Calculation of the attributable risk reveals an excess of more than 115,000 cases of upper respiratory disease in Santiago due to air pollution. In the same study it was found that the relative risk of bronchial asthma was 1.76, an important finding that translates into an annual excess of 35,000 cases in Santiago.

The Santiago study revealed a statistically significant association between the frequency of pneumonia and increased air pollution. The relative risk of pneumonia was estimated at 3.78 and the number of excess cases of pneumonia due to air pollution in Santiago, at some 50,000. In Brazil a similar association between pneumonia and air pollution was observed.

The health of populations living close to natural environments that have been altered by human activities is often threatened by zoonoses and other infectious diseases transmitted through direct or indirect contact with vectors or carriers, or with their secretions or waste. Transmission of rabies by wild animals, including wolves, coyotes, and raccoons, occurs frequently, especially in the countries of North America. The mongoose (*Hespes auropunctantus*) continues to be the reservoir of rabies in Cuba, the Dominican Republic, Grenada, and Puerto Rico. The presence of the disease in wild animals constitutes a serious risk for the human population that comes into contact with these species.

Rabies transmitted by vampire bats has recently acquired increased epidemiological importance in the countries of Latin America (see HCA, 1994 edition).

In rural areas of Latin America, especially newly settled areas in which large expanses of land have been cleared, diseases such as yellow fever, dengue, and onchocerciasis are prevalent. This is the result of both contact by the population with animals and deficiencies in sanitation and environmental services and health education programs.

Over the past 30 years more than 23,000 cases of Argentine hemorrhagic fever have been reported, with an average of 360 cases a year in the past decade. This zoonosis is caused by rodents widely found in corn fields in Argentina.

It is estimated that the 350 million urban inhabitants of Latin America and the Caribbean produce 250,000 tons of garbage a day, some 60% to 95% of which are collected. Data on the coverage of refuse collection services for some countries of the Region are either non-existent or unavailable. However, it is possible to obtain information on urban sanitation coverage in some countries that keep statistics on the subject.

Surveys conducted in 22 cities (see HCA, 1994 edition) revealed that 87% of the refuse produced is collected; 57% is disposed of in sanitary landfills, 25% in controlled landfills, and 20% in open-air dumps. In 60% of these cities refuse collection is the responsibility of the municipal government, and in 40% municipal companies are responsible. Half the cities have their own services and the other half contract with private firms for refuse collection. In 73% of the cities the sanitation services are operating at a sizable deficit.

The problem is most acute in places in which the services are most deficient, generally in marginal urban areas, where the lack of infrastructure makes refuse collection more difficult and garbage tends to accumulate in vacant lots and along the banks of rivers.

The presence of toxic, carcinogenic, mutagenic, and teratogenic chemical substances in urban solid waste is another growing concern.

Recycling and reuse are practices that, in addition to alleviating the problem of deficient infrastructure for the collection and disposal of refuse, make it possible to decrease the amount of garbage and contribute to the conservation of non-renewable natural resources. Several countries are attempting to encourage recycling. However, most recycling takes place not through official programs but through the efforts of trash sorters and workers employed by refuse collection services. A number of countries have established recycling plants to produce fertilizer or compost for use in agriculture. It is estimated that more than 20 plants of this type have been opened in the Region during the past 30 years. Nevertheless, 90% of them have been forced to close, mainly because no initial studies were performed to determine the market for their products and because no programs were established to train the personnel who would operate the plants. Colombia has been quite successful in implementing a recycling program.

In order to achieve effective environmental management and protect public health, it is essential to plan, implement, and operate systems that take the complete garbage cycle into account, from generation through storage and collection to treatment and final disposal. In general, it is necessary to increase public involvement in the process, as well as to secure the active participation of the authorities responsible for urban sanitation in the countries of this Region.

Hazardous waste occupies an important place among the threats to environmental health. In order to assess the aspects related to the production and disposal of this type of waste, in 1993 PAHO began a study in 21 countries and territories of the Region: Anguilla, Argentina, Brazil, Bolivia, Chile, Colombia, Cuba, Dominica, Ecuador, Guatemala, Guyana, Jamaica, Mexico, Nicaragua, Paraguay, Peru, Saint Lucia, Saint Vincent and the Grenadines, Trinidad and Tobago, Uruguay, and Venezuela. In Anguilla, Barbados, Dominica, Guyana, and Saint Lucia the survey looked at the 15 industries generally considered to be the largest producers of hazardous waste; it included only summaries of the quantities of hazardous waste produced by health care establishments. Data on the amount of hazardous waste produced by industry and health care establishments were analyzed and their practices for the treatment of effluents and disposal of hazardous waste were examined. The survey also considered the institutional and legislative measures taken in each country to control hazardous waste.

In regard to industrial waste, it was determined that a relatively small number of industries are responsible for the bulk of the contaminated effluents and hazardous waste produced in the Region. These include the textile and tanning industries, pulp and paper manufacturers, printing companies, producers of chemicals and finished metals, and foundries for smelting iron and other metals.

Proper disposal of hazardous waste is critical to the protection of health and the environment. If appropriate disposal methods are not employed, the risk of adverse health effects for the potentially exposed population increases rapidly. In a study of 15 types of industries in the Region (see HCA, 1994 edition), the following range of disposal practices was observed:

(a) disposal in open dumps;

(b) disposal in open dumps or in sanitary landfills;

(c) disposal in sanitary landfills;

(d) storage;

(e) disposal in sanitary landfills or other type of secure landfills;

(f) recycling;

(g) other methods;

(h) no data available.

Methods (a) through (f) are listed in ascending order of preference. Numbers (g) and (h) present supplementary information only. It is noteworthy that incineration is not included in the list, although it is known that this method of disposal is in use in some countries. The findings of this study indicate that, with few exceptions, the methods that are being used to dispose of hazardous industrial waste are generally inadequate, which increases the risk of environmental degradation and the adverse consequences for health.

The information compiled during the PAHO survey also indicated that the hazardous waste produced by health care establishments is often handled in the same way as ordinary waste, which creates a direct risk for health workers and refuse collectors.

In regard to the existence of legislation on hazardous waste, Argentina, Brazil, Mexico, and Venezuela are perhaps the most advanced countries. In Brazil, responsibility for the management of hazardous waste has been delegated to the states. Mexico has enacted several sets of national regulations under its General Law on Ecology and Environmental Protection; however, these regulations are not being fully enforced because the corresponding government structures have not yet been put in place. Argentina and Venezuela are in a similar situation: they have laws on the books but lack the infrastructure necessary to oversee their application and enforcement. It should be noted that for purposes of hazardous waste classification, the latter two countries have adopted the provisions of the Basel Convention on hazardous waste, ratified in 1987. The information received from Cuba indicates it also has drawn up legislation based on the Convention.

The remaining countries have only limited legislation and a minimum of infrastructure for hazardous waste control. This situation is apparent from the large number of countries that have not yet developed systems for the classification of hazardous waste, which is a prerequisite for the formulation of laws on the subject.

Nevertheless, it should be noted that several countries have recently taken the first steps toward the management of industrial waste. For example, in Chile, the government of the Regional Metropolitan Government (which accounts for more than 70% of the nation's output of industrial waste) has adopted a resolution on the establishment of a system for determining what constitutes industrial solid waste and for carrying out monitoring activities. Under the provisions of this resolution it will be possible to establish a classification system which in turn will facilitate the safe disposal of hazardous waste. In addition, the Ecuadorian Sanitation Works Institute of Quito is conducting a survey in the framework of the Industrial Registry, and Uruguay has launched a program for hazardous waste management, the first phase of which will include a national survey of the production of this type of waste.

In recent years, the scope of community concerns regarding environmental health has broadened, owing to the ever-growing prevalence of chemical and other pollutants, as well as radioactive hazards of various types. The increase in the number of physical risks (for example, noise pollution), coupled with changes in biological risks (for example, development of resistance in malaria vectors and parasites to chemical control methods), have also intensified concerns over environmental health. In addition, some of these environmental factors are believed to have an impact on mental health.

The risks posed by exposure to pesticides (poisoning, ingestion of residues left on food, contamination of drinking water) vary with the protective measures taken during their application and with the type of product used. Organochlorine compounds such as DDT degrade very slowly and tend to remain in the soil and groundwater. In addition, they accumulate in the fatty tissue of animals that occupy an important place in the food chain and are often found in high concentrations in breast milk. The products resulting from the elimination of these compounds (for example, DDE and DDD) also accumulate and can also be toxic. Organophosphorus compounds, on the other hand, are eliminated faster, but cause much more acute poisoning. Although pesticides are intended to be toxic to certain pests, they also affect human physiological systems and, almost without exception, can cause various acute and chronic diseases.

Perhaps even more important than these drawbacks of pesticide use, however, is the fact that these chemicals are no longer the effective means of protecting crops that they once were because a growing number of plant, insect, and microorganism species have become resistant to them. This has led to the serious risk that several pesticides will be used, or that they will be applied more frequently, in order to compensate for their ineffectiveness, thus increasing the health hazards. Another problem linked to resistance is the ever-growing resources that must be spent to control pests.

The pesticides that have been most frequently used up to now in the Region are organochlorine pesticides, which have been employed in public health campaigns and to control crop blights. The residues of these pesticides have been a major source of concern for health authorities—a concern which is justified, given the high concentrations of these substances that have been found in breast milk, fatty tissues, and blood, as well as foods. Several studies have also implicated pesticides in the generation cancer and various reproductive problems.

Although the health and environmental problems associated with pesticide use have been recognized and the governments have attempted to address and control the risks, the volume of pesticides used in many countries remains disturbingly large. The situation is all the more worrisome because it is known that pesticides are often used improperly, which increases the risk of harmful exposure.

Large-scale pesticide use has resulted in many cases of pesticide poisoning in various countries (see NCA, 1994), as well as several epidemic poisoning outbreaks, such as the one that occurred in Nicaragua in 1986-1987, in which there were 1,250 cases of poisoning from metamidophos and carbofuran used in the production of corn.

Recently, PAHO conducted an analysis of several epidemiological studies that looked at the effects of pesticides on several segments of the general population and on the environment. Those found to be most directly affected include agricultural workers —especially women and children—and, in general, any population living in agricultural areas. Summarized below are some of the findings of these studies:

- in the smaller countries of the Region at least 1,000-2,000 cases of pesticide poisoning are estimated to occur each year. In the larger countries, the number is proportionately greater. The number of cases of pesticide poisoning increased every year during the 1980s;

- persons under the age of 18 account for as much as 20% of all pesticide poisonings;

- concentrations of pesticide residue in various foods may be from 3% to 50% higher than the recommended limits;

- concentrations of organochlorine compounds, especially DDT, in human breast milk are usually greater than in cow's milk and often exceed the recommended limits, especially in agricultural areas.

It is evident that pesticide control measures are urgently needed in Latin America in order to protect the environment and human health. These measures should be closely linked to national agricultural policies and also to broader economic policies.

Heavy metals have historically been the chemicals of greatest interest from a public health standpoint. Cases of poisoning from substances have been reported in mine workers since ancient times. Health authorities have become particularly concerned of late about the effects of exposure to arsenic, lead, and mercury.

Exposure to arsenic is generally the result of consumption of naturally contaminated drinking water containing concentrations of more than 0.200 mg of arsenic per liter. In Argentina, Chile, and Mexico the health effects of such consumption, including cancer and vascular disorders, have been widely described. Human exposure to water with high arsenic content has also been reported in Bolivia, Paraguay, and Peru, but there is not enough information to evaluate the magnitude of the problem. Reports of exposure through inhalation and ingestion of contaminated dirt and dust are less

frequent. However, copper foundries, which release inorganic arsenic and other elements into the air, have caused higher-than-average exposure. In Chile and Mexico, several studies have demonstrated that high concentrations of arsenic and other neurotoxic elements in the soil and in dust in the domestic environment increase the concentrations of these elements in children's bodies.

In regard to lead, the principal routes of human exposure in Latin America and the Caribbean are inhalation and ingestion. The combustion of leaded gasoline and emissions from foundries, factories, and battery repair shops, as well as paint factories, are the principal sources of atmospheric lead. In some places, geographical and climatic conditions limit the dispersion of air-borne lead, and it thus tends to settle, contaminating soil, dust, and water. Prospective studies among pregnant women in Mexico have shown that blood lead concentrations (PbB) as low as 10 μg/dL reduce the length of gestation, as well as the birth weight, trunk length, and chest circumference of the newborn and its ability to control its movements during the first 30 days of life. Studies of children (from 7 to 9 years of age) with a mean PbB of 19.4 μg/dL have shown a significant inversely proportional relationship between blood lead concentration and IQ test scores and academic grades. In most of the countries of Latin America and the Caribbean leaded gasoline is still used. It is estimated that the combustion of leaded gasoline in Mexico City releases 3.7 tons of fine lead particulates daily into the environment. *Children who live on heavily trafficked streets have much higher PbBs than do children* who live in neighborhoods with less traffic. This discovery is important, because it shows that strict regulation of the lead content of fuel could considerably reduce exposure to this heavy metal.

The principal factors contributing to lead exposure through ingestion are: the habit to eating dirt and dust (pica) among children who live in areas where lead foundries, battery factories, and ceramics workshops are located; the use of lead-glazed ceramic ware for the preparation and storage of food; and the use of pigments containing lead in the manufacture of toys and pencils for children. Lead-glazed ceramics are used extensively in Mexico and Central America for culinary purposes. These traditional clay dishes are hardened at low temperatures and release lead that contaminates foods and beverages. In adults and children a strong correlation has been found between PbB and consumption of food prepared or served in these dishes. Such discoveries point up the benefits of regulating the use of lead in the production of ceramic ware.

In the case of mercury, gold mining is the most important source of environmental pollution and causes human exposure and toxic effects. The best documented studies have been carried out in the Brazilian Amazon region, but the problem has also been reported in Peru and Venezuela. Exposure comes principally from two sources: gold smelting, which releases mercury vapors that may be inhaled by miners or the population living around the small smelting factories in the towns where

the metal is purified, and deposits and emissions of mercury into rivers, where it contaminates fish and other foods, affecting the general population. The lack of access to health services and the high prevalence of malaria, malnutrition, and other endemic diseases complicate efforts to assess the effects that exposure to mercury has had on health in the Amazon region.

Mining activities are currently being carried out on a total of 16.7 million hectares in Brazil, and since a 32-million-hectare reserve has been set aside for the extraction of minerals, such activity is expected to increase in the coming years. Between 400,000 and 600,000 people are involved in mining in 1,266 isolated sites where there is little access to health services. The population living in the areas around these sites is also being exposed to mercury.

It is estimated that in the countries of Latin America and the Caribbean the production and use of solvents has risen substantially during the past two decades and will continue to increase in the coming years. The production of benzene, for example, has grown enormously in Brazil and Mexico in the past five years. As a consequence, there is greater occupational and environmental exposure to organic solvents, especially in the petrochemical industry. Other important sources of exposure include small factories, cottage industries, and consumer products. However, neither the magnitude of exposure nor the size of the population at risk of exposure is known.

The health impact of exposure to solvents has been examined in a relatively limited number of studies in the countries of Latin America and the Caribbean. Most of the available studies are cross-sectional and focus in particular on the neurological effects among people exposed in the workplace. Only one cohort study was identified, in which increased morbidity and mortality from certain types of cancer was noted among some Brazilian workers exposed to benzene.

Several studies on biological and environmental surveillance among groups working in various occupations have also been carried out. In Brazil and Mexico, studies of solvents detected in commercial products available to consumers indicated a high degree of potential exposure to benzene.

Another important source of exposure to solvents, unrelated to occupational exposure, is deliberate inhalation, especially among young people in urban areas. Cases of deliberate inhalation of solvents for their psychotropic effects have been documented in Argentina, Chile, Mexico, and other countries. No comprehensive epidemiological study has investigated the effects of such inhalation for the health of the general population; however, neuropsychological examinations of clinical cases and some descriptive epidemiological studies have indicated that the rate of solvent abuse among street children, especially homeless boys, may be as high as 20%-60%.

CHAPTER VI

POPULATION AND SOCIOECONOMIC TRENDS

1. Population Trends

1.1 *Size and Growth of the Population*

In 1950 the American Hemisphere accounted for 13.16% of the world's population, and estimates indicate that this figure will be 12.53% by 2025. The share of Latin America and the Caribbean in the total world population was 6.56% in 1950; it is projected to rise to 8.38% in 1995, with a decline to 8.16% by 2025. The population of North America fell from 6.60% in 1950 to 5.07% in 1995, and a further decline to 4.25% by 2025 is projected.

In 1950 the population of the Americas was approximately 331 million; estimates indicate that it will reach 774 million in 1995 and 1,062 million by 2025. The relative importance of the Latin American population has increased over time: in 1950 it accounted for 48.7% of the total population of the Americas; by 1995 this figure will have risen to 61.3%, and by 2025 it is projected to reach 65.1%; the Caribbean shows a decline from 1.2% in 1950 to 1% in 1995 and 2025, whereas North America, which accounted for 50.1% in 1950, will decline to 37.7% in 1995 and to 33.9% in 2025.

The Annex shows the population for the various subregions, countries, and territories in the Region of the Americas for 1995, including figures for different age groups.

The subregions examined show varying growth rates in period 1990-1995 (see Annex), lower than in the past. The table below shows the current figures--that is, for 1990-1995, and the maximum growth figures for 1950-1990--indicating the percentage value and the five-year period in which the high was reached for the entire Region and subregions examined.

The lowest growth rate has always been that of North America, which declined by 40%, from 1.80% to 1.06%; the highest, 3.2%, was found in Mexico in 1960-1965, followed by an annual rate of 2.75% in Central America and the Andean Area in 1990-1995. The growth rate in Latin America is directly influenced by the rates in Brazil and Mexico, which rank fifth and eleventh, respectively, in terms of world population volume in 1995. The two countries decreased their growth rates in 1990-1995, Brazil by one-half and Mexico by one-third, since the historical highs were

reached in the former 40 years ago and in the latter, 30 years ago. If the individual percentage rates of the other countries in the Region with a population of more than 1 million in 1995 are into account, the range will increase. Hence, for example, the lowest growth rate in the early 1950s occurred in Uruguay, at 1.25% per year, and the highest in Venezuela, at 4.1%. For 1990-1995 Uruguay continues to exhibit the lowest growth, at 0.6%, and Nicaragua the highest, at 3.7%.

Table 3: Five-year Average Annual Population Growth Rates for 1990-1995 and Highest Rates for 1950-1990

HEMISPHERE AND SUBREGIONS	Rate 1990-1995 (%)	Period of Maximum Rate	Rate (%)
Hemisphere	1.52	1960-1965	2.31
Latin America	1.80	1960-1965	2.78
Andean Area	2.75	1960-1965	3.03
Southern Cone	1.36	1950-1955	1.99
Brazil	1.59	1950-1955	3.15
Central American Isthmus	2.75	1960-1965	3.11
Mexico	2.06	1960-1965	3.20
Latin Caribbean	1.45	1960-1965	2.22
Non-Latin Caribbean	1.06	1950-1955	2.14
North America	1.06	1950-1955	1.80

In terms of population volume the countries that contributed most to the 443 million increase between 1950 and 1995 in the Region of the Americas were the United States of America, with 111 million, Brazil with 108 million, and Mexico with 66 million. For the coming 30 years, between 1995 and 2025, a growth of 59 million is anticipated for the United States of America, 58 million for Brazil, and 44 million for Mexico, which points to a total of growth for the Region of the Americas of 288 million. In relative terms, the greatest growth between 1950 and 1995 occurred in the Central American Isthmus, at 258%, followed by Mexico with 243%, and Brazil with 202%, while the lowest growth was recorded in North America, with 76%, and the Caribbean, with 88%.

The varying growth rates in the subregions of the Americas have given rise to a situation where, while in 1950 the population of North America (basically the United States of America) was on the same order as the entire population of Latin America and the Caribbean, by 1995 the combined populations of Brazil and Mexico will equal that of the United States of America, and by 2025 will surpass it by 35 million.

1.2 ***Fertility***

(a) *Crude Birth Rate (CBR: Births per 1,000 Population)*

The Region of the Americas exhibited a decline in the crude birth rate on the order of 33%, from a rate of 33.8 in 1950-1955 to 21.9 in 1990-1995. It should be noted that analyses by subregions indicate that the Central American Isthmus was the area in the world with the highest crude birth rate in 1950-1955, 49.6. Individual birth rate values for the various countries and subregions in the Americas (see Annex) reveal that all the countries for which information is available from 1950-1955 to 1990-1995 have reduced their birth rates, despite the increase in the population of childbearing age —although at different intensities, depending on their levels at the beginning of the period of analysis. Thus, the countries of the Andean Area that had rates higher than 45 fell to rates lower than 30, with the exception of Bolivia. The Southern Cone countries evidenced two different situations in 1950-1955: Argentina and Uruguay had low rates, while Chile and Paraguay, especially Paraguay, had high rates; all four countries lowered their birth rates, especially Chile, whose birth rate fell to 22.5, only slightly higher than the that of the La Plata River countries. Given its demographic importance within the Region, Brazil is the country that showed the most dramatic decline in its birth rate, from 45 to 23. Mexico exhibited little change in the first part of the period, with figures higher than 40; subsequently, in the mid-1970s, it began a marked decline, from 43 to 28.

The Central American Isthmus remains the subregion with the highest birth rate, although even the decline is appreciable. At the beginning of the period this subregion had some of the highest individual country rates in the world, even in excess of 50 per 1,000. At the present time Costa Rica and Panama have relatively low rates, on the order of 25 per 1,000, in contrast to the other Isthmus countries, which have rates of 35 or more. With the exception of Haiti, the Latin Caribbean countries have evidenced a clear decline in their birth rates. Puerto Rico and Cuba, together with Uruguay, are the countries with a population of more than 1 million that have the lowest birth rates in Latin America and the Caribbean, with rates of 17-18 per 1,000—a figure slightly higher than that of Canada and the United States of America, which have rates of 14-16 per 1,000. These countries have also lowered their birth rates, even though these figures were not high in 1950-1955; Canada, in particular, lowered its rate by 50%. Although information is not available for all of them, the countries of the non-Latin Caribbean at

the present time show moderate and low rates, with certain exceptions, such as Grenada, with a rate of 35 per 1,000.

The number of births is an important component of population growth, as are migration and mortality. The number of births depends on the age structure of the population and on fertility rates. Nevertheless, although these factors vary from country to country and make comparison of crude birth rates in different populations difficult, the number of births is of fundamental importance in formulating policies and programming activities in this area. For 1990-1995 the average annual number of births in the Region of the Americas has been estimated at 16.3 million. Births have been increasing since 1950-1955, when the annual number was 12.8 million. However, the rate for the current five-year period 1990-1995 represents the historical high, since projections for the coming years place this number at 16.2 million for 1995-2000 and 15.6 million for 2020-2025. Of the 16.3 million annual births estimated for 1990-1995, 11.8 million correspond to Latin America and the Caribbean and 4.5 million to North America. It should be noted that the historical high with regard to births is based on the marked reduction in fertility observed in recent years, which has brought about changes in the estimates, not only for births but for the population as well. Thus, 1988 estimates for Latin America and the Caribbean predicted an annual average of 12.7 million births for 1990-1995, while in the last estimate for the same period, made in 1992, this number fell to 11.8 million. Moreover, the total population for Latin America and the Caribbean was estimated at 494 million for 1995, while the recent 1992 estimate cut it to 482 million. The new estimates have reduced the number of births in all the subregions, with the exception of North America, where it is estimated that the number has increased from 3.9 million to 4.5 million annually. The country for which the estimates forecast the greatest decline in the number of births was Brazil, where the annual average for 1990-1995 dropped from 4.1 million to 3.6 million.

Generally speaking, for Latin America and the Caribbean, the best comparison for situating the trend of the birth rate within the general population context is the following: While estimates of the number of births for the years up to 2025 range from 11.8 million annually in 1990-1995 to 11.5 million annually in 2020-2025—values that are similar—between 1995 and 2025 the population will grow by 46%.

(b) *Total Fertility Rate (TFR)*

The total fertility rate reflects the average number of children a woman bears throughout her reproductive life. It is calculated on the basis of the total specific fertility rates by age group for women aged 15 to 49, with the following breakdown: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49. At the world level Latin America and the Caribbean is the region that shows the greatest decline in the total fertility rate in recent years. Estimates for the last decade, 1980-1985 to 1990-1995, confirm the trend of the

two previous decades toward a reduction of 1 child per decade: 5.95 in 1960-1965, 4.98 in 1970-1975, 3.92 in 1980-1985, and 3.05 in 1990-1995.

Analysis of the total fertility rates by country (see Annex and HCA, 1994), with the exceptions of Canada, Cuba, and the United States of America, whose rates increased between 1985 and 1995, shows that the rates declined with varying intensities in the remainder of the countries, depending on their previous total rates. As noted earlier with respect to Latin America, the rate fell from 4.1 to 3.1; however, in the past decade several countries showed a decline of more than 1 child per woman of childbearing age. The most significant of these, because of their demographic importance, were Brazil and Mexico, although a considerable reduction was also seen in Peru, Ecuador, and Honduras. The highest rates occurred in the Central American Isthmus (except for Panama and Costa Rica) as well as Haiti and Bolivia. All the countries and/or territories of the Caribbean showed moderate or low rates, with the exception of Grenada. The countries in this subregion—Antigua and Barbuda, Aruba, Barbados, Caiman Islands, Martinique—as well as Bermuda, Canada, and Cuba, exhibited rates that indicate a net reproduction rate of less than 1, since the total fertility rate is less than 2.

For the Latin American subregion the decline in fertility occurred in all age groups, with the greatest decrease in women 30 years old and older, especially in the period 1970-1975 to 1985-1995. There was no increase in fertility in teenage mothers, but rather a greater reduction in fertility in nonadolescents, which raised the proportion of total births in Latin America among women 15 to 19 years old from 9% in 1950-1955 to 11% in 1985-1990.

1.3 *Total Mortality*

(a) *Crude Death Rate (CDR: Deaths per 1,000 Population)*

Study of the Region of the Americas by subregions and countries (see Annex) reveals a variety of situations. Whereas there was a only slight decline in deaths per 1,000 population in North America and the Southern Cone, the decrease in other areas was very marked, especially in Mexico, the Andean Area, and Central America, where a two-thirds decline was recorded. Measured in terms of the number of points that the rate fell in the past 40 years, the most notable decline—around 15 points per 1,000—was registered in Bolivia, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua, Peru, and the Dominican Republic. These countries had the highest rates, between 22 and 25 per 1,000 for 1950-1955, which have been estimated at between 7 and 10 per 1,000 for 1990-1995.

The number of deaths is an important component of population growth, as are the birth rate and migration. Since the number of deaths is dependent on age distribution

and mortality by age, the trends of the crude death rate or the number of deaths in many cases do not accurately reflect the changes that may be taking place in specific deaths by age (the estimated crude death rates for 1990-1995 for Canada and Guatemala are the same—7.7 per 1,000—while the difference in life expectancy at birth is 16 years).

For the Region of the Americas, the average annual number of deaths in 1950-1955 was 4.4 million, 2.75 million of which occurred in Latin America and the Caribbean and the remainder in North America. For 1990-1995 the corresponding estimates are 5.7 million for the entire Hemisphere, 3.2 million for Latin America and the Caribbean, and 2.5 million for North America. For 2020-2025 the estimated figures are 8.3 million, 5.0 million, and 3.3 million, respectively.

Given the population growth of Latin America and the Caribbean and its change in age distribution, it is not possible to make an overall assessment of the real reduction in mortality when making calculations for the entire population. However, if the focus is placed on children under 5 years of age it will be seen that while the number of deaths in this age group was 931,000 in 1980, it fell to 839,000 in 1985 and 744,000 in 1990; estimates indicate this figure will reach 689,000 in 1993 for all of Latin America and the Caribbean. The corresponding numbers for North America are 54,000, 48,000, and 45,000, respectively, for the years under study. For Latin America and the Caribbean the estimated number of 689,000 deaths of children under 5 years of age for 1993 is on the order of 50% of the figure for the same age group and region 30 years before, when the annual average number of deaths in children under 5 in 1960-1964 was 1.3 million. A similar, but less intense, phenomenon occurred among the 5-14 age group, since the average annual number of deaths declined from 220,000 in the five-year period 1960-1964 to 150,000 in 1985-1989.

The change in the proportional structure of mortality by age in Latin America and the Caribbean may be observed by comparing the percentages of deaths in children under 15 years of age with those in the population 65 and older. While in 1960-1964 the under-15 age group accounted for 52% of all deaths, in 1985-1989 this percentage decreased to 31%. Deaths of those 65 and older accounted for 19% and 36% of deaths, respectively.

(b) *Life Expectancy at Birth (LEB)*

The above-mentioned reduction in mortality is best measured by life expectancy at birth, which is not affected by the age structure.

For the Region of the Americas, the increase in life expectancy at birth in the period 1950-1955 to 1990-1995 was 12.6 years, with the greatest increase in Latin America, with 16.6 years, followed by the Caribbean, with 15.3 years, and North

America, with 7.2 years. In the past 10 years the gain in the three American subregions, while lower than in previous decades, was also considerable, since it was 3 years for Latin America, 2.6 years for the Caribbean, and 1.3 years for North America. At the present time, North America has the highest life expectancy of all the regions in the world.

Study of life expectancy by individual countries and territories in all the Americas (see Annex), shows that for 1990-1995, with the exception of Haiti, all attained a life expectancy at birth of 60 years or more, the figure established as a world target in the strategy of Health for All by the Year 2000. With respect to the regional target for life expectancy at birth of 70 years established for the Americas, it may be seen that in 1980-1985, of the 31 countries for which information exists in the Region, 12 have already attained figures compatible with this target; for 1990-1995, of the 48 countries and territories with available estimates, 35 have achieved the target, and in 11 of the 35, life expectancy at birth was 75 years or more.

Since the increase was greater in the period 1950-1980, when several countries increased life expectancy at birth by more than 15 years, the estimated gains are also significant in the decade between 1980-1985 and 1990-1995, particularly in countries where mortality was high. Thus, Bolivia, El Salvador, Guatemala, Nicaragua, and Peru increased their life expectancy at birth by more than 5 years, and El Salvador by more than 10. The figure for the countries that had already achieved a life expectancy at birth of more than 70 years in the early 1980s also increased, but to a lesser extent. Uruguay and Paraguay, which had high life expectancies in 1950-1955, exhibited the smallest gains in 1950-1955 and 1990-1995.

In the three subregions--Latin America, the Caribbean, and North America--the difference in life expectancy tends to increase in favor of women: The difference rises from 3.3 years in 1950-1955 to 5.7 years in 1990-1995 in Latin America, from 2.7 years to 5.2 years in the Caribbean, and from 5.7 years to 6.6 years in North America. For 1990-1995 the lowest difference is seen in Cuba, with 3.7 years.

1.4 *Migration*

In principle it seems odd that international migration, which has been the subject of so much debate and growing importance because of the demographic and economic gaps that exist between countries, refers only to a small portion of the world's population. At the beginning of the 1990s, for example, the number of people living in a country in which they were not born was on the order of 50 million—that is, a mere 1% of the world's population. Of these 50 million, 21.6 million—more than 40%—resided in the United States of America, whose immigrant population rose by 50% between 1980 and 1990, from a figure of 14 million immigrants in 1980.

Although the numbers are small in relative terms, they may become large in absolute terms when analyzed from the standpoint of the countries that are losing or gaining population, since they are often distributed unequally in both those that gain or lose. Migration from one country to another tends at times to originate more in certain areas and to concentrate in other areas in the new country, following certain patterns and constructing very specific networks, especially in particular areas in certain cities. This gives these migrations a certain visibility and increases the perception of cultural identities. Problems related to ethnic relations, social integration, and distributive justice arise, which in many cases are difficult for government authorities to resolve. The underlying reason for most migration, to seek employment and economic betterment, is not usually accompanied by social integration. In addition to its demographic consequences, migration should be considered from the economic standpoint of both the migrants and their country of origin, since for many of these countries remittances by immigrants has become one of their main sources of foreign exchange.

It should be noted that official statistics commonly underestimate the true numbers of people of other nationalities living in the countries. Thus, for example, estimates of the number of illegal aliens in the United States of America—that is, those who have not obtained work permits and as a result are not included in the statistics—at between 2.5 and 4 million, to which their dependents must be added.

Historically, the Hemisphere has received large migration currents from all parts of the world, especially Europe. Up to the mid-1950s, the Region of the Americas, both Latin America and the Caribbean, on the one hand, and North America, on the other, were able to maintain a positive migratory balance in that more migrants arrived from other parts of the world than departed from the Hemisphere. In the 1950s, however, Latin America and the Caribbean began to show a negative balance that reached its peak in the 1980s, while North America continued to maintain a positive migratory balance.

An attempt may be made to quantify migration based on United States of America census data for 1990. Despite the fact that poles of attraction for emigrants from Latin America and the Caribbean have expanded and now include the countries of Western Europe, in addition to Canada and Australia, the United States of America continues to be the chief recipient of emigrants from Latin America and the Caribbean. For some countries or territories— usually with small populations—the principal destination varies, and as in the case of some Caribbean islands, certain countries of Western Europe are the principal destination of emigration. The 1990 census listed 22.4 million people of Latin American and Caribbean origin living in the continental United States of America who attested to being born in Latin American or Caribbean countries or territories or whose ancestors were. Of that total, 13.5 million (60%) were Mexican, 2.7 million Puerto Rican (12%), 1.1 million Cuban (5%), 3.3 million from Central and South America (15%), and 1.8 million (8%) from the other Caribbean islands, excluding Cuba

and Puerto Rico, already considered individually. The differences in attraction exerted by various regions may be observed in the fact that 60% of Mexicans are found in the West (especially in California), 70% of Puerto Ricans are in the Northeast (largely in New York), and Cubans are preponderantly in the South, mostly in Miami. These proportions change if the analysis is confined to the place of birth. This means, inter alia, that Puerto Ricans are not recorded as being born outside the United States of America, which reduces the number of immigrants of Latin American and Caribbean origin to 19.7 million in 1990.

In 1990 the number of people from all parts of the world born outside the United States of America but residing in the United States of America was 21.6 million (9% of the total population), 50% higher than the 1980 figure of 14.1 million. Of the previous total of 21.6 million, 8.7 million were born in countries or territories in Latin America and the Caribbean, excluding Puerto Rico. This represents 40.5% of the total number residing in the United States of America but born outside the United States of America. The figure for 1980 was 4.4 million, which means an increase of almost 100% during the 1980s. A comparison of the figures for those born outside the United States of America and those of Latin American origin (excluding Puerto Ricans), 8.7 and 19.7 million respectively, leads to the conclusion that people of Latin American origin residing in the United States of America are distributed as follows: for every two persons born outside the United States of America three are born in the United States of America. Generally speaking, this means that migration to the United States of America is not of recent date, and moreover, that the fertility rate of Latin Americans is higher than that of the rest of the population.

If at the world level the ratio between immigrants and native-born population is 1%, it increases to more than 2% in the case of Latin America, since its population for 1990 was on the order of 440 million, and those who have emigrated to the United States of America in themselves constitute 2% of the Latin American population. The above-mentioned figure for migration to the United states by those of Latin American and Caribbean origin does not take into account migratory movements to other regions and countries of the world, nor does it consider the fact that the figures used are official figures and consequently do not take illegal immigration into account. Refugees are also not considered in this category. Countries in the Americas other than the United States of America that have significant numbers of non-native residents are Canada, with 4 million and 16% of the population; Argentina, with 2 million and 7% of the population; Brazil, with 2 million and 1.5% of the population; and Venezuela with 1 million and 7% of the population (1980 figures).

In addition to the islands, the Caribbean subregion includes countries and territories such as Belize and the Guianas (French Guiana, Guyana, and Suriname), where migration has had an appreciable demographic impact. According to a study (J.P.

Guengant, Current Demographic Trends and Issues, Symposium on Population and Development, held by the United Nations Population Fund in Antigua, 22 July 1992) the cumulative negative migratory balance for the period 1950-1989 as a whole was 5.6 million, with 3.1 million in the period 1970-1989. To place this volume of migrants in context, it should be added that the total population of this Caribbean region was 17 million in 1950 and 35 million in 1990. Except for the U.S. Virgin Islands and French Guiana, all have had a negative migratory balance. The demographic importance of this phenomenon is clear on examination of the ratio of emigrants to the resident population in 1990. Countries or territories such as Aruba, Grenada, Dominica, Montserrat, Saint Kitts and Nevis, and Saint Vincent and the Grenadines have more of their native born living outside the country than inside, since in these countries the percentage is higher than 50%; the figure for Antigua and Barbuda, Barbados, Curaçao, Guyana, Jamaica, Saint Lucia, and Suriname is between 30% and 50%. It is clear that the larger numerical volumes correspond to the most populous countries, particularly Cuba, Haiti, Jamaica, Puerto Rico, and the Dominican Republic, with numbers ranging from 750,000 (Cuba) to 1.05 million (Haiti).

Although migration in the remainder of the countries of Latin America has not had the same demographic impact it has in many countries of the Caribbean in the second half of this century, with the exception of Paraguay and Venezuela (the former owing to heavy emigration and the latter to heavy immigration at the beginning of this period), it has indeed been important in numerical terms for countries such as Bolivia, Colombia, El Salvador, Guatemala, and Nicaragua. Uruguay is a special case: a major recipient of immigrants up to 1960, it subsequently became a country characterized by high emigration rates. Argentina continues to have a small but positive migratory balance and has been the principal destination for migratory currents from neighboring countries such as Bolivia, Chile, Paraguay, and Uruguay. In recent years, however, due to the economic crisis, immigration has fallen and emigration has increased, among skilled labor. Brazil has also received a sizable number of immigrants, although at the same time it has been the origin of migratory movements toward the rural areas of neighboring countries. Venezuela has historically been the chief migratory destination of Colombians, but it has also attracted a sizable number emigrants from countries such as Chile, Costa Rica, Ecuador, Peru, the Dominican Republic, and Uruguay. Another migratory current between Latin American countries has emerged between Haiti and the Dominican Republic and from the Central American countries to Belize. In the 1980s Canada admitted more than 1 million immigrants, 52% for the purpose of family reunification and 16% for reasons related to political asylum or refuge status. This last category of refugee or asylum-seeker accounted for 18% of all immigrants admitted to the United States of America in the period 1980-1989.

Around 1989 the number of refugees and displaced persons in Latin America was on the order of 1.2 million, nearly all them (98%), in Mexico and Central America, with

the remaining 2% in South America. Only 15% received official assistance from the United Nations High Commissioner for Refugees. The new political situation in Central America has partially reversed this situation with the repatriation of large numbers of people, although significant relocation problems have arisen.

1.5 *Population Composition by Age*

For children under 15 years of age the proportion of the total population in the Region of the Americas declined in 1950-1995 from 34% to 29%, with a further rapid reduction projected between 1995 and 2025, when it will conceivably fall to 22%. Like the world population, the group aged 65 and older grew both in percentage terms, from 6% to 12%, and in volume, more than tripling between 1950 and 1995. The behavior of these figures by subregion in the Americas shows large disparities, since they range in 1950 from 27% for children under 15 years of age and 8% for those 65 and older in North America, to 44% in the Central American Isthmus for children under 15 and 2.5% in Brazil for those 65 and older. The range of figures for children under 15 increases in 1995 (maximum 42%, minimum 22%) and a reduction is foreseen only for future projections. The same phenomenon is present for those 65 and older, increasing in 1995 and decreasing by 2025. In 1950 only Canada, the United States of America, and Uruguay had under 30% of their populations comprised of children under 15 years old and 7% or more of persons 65 and older. For all the countries of the Andean Area, Central America, Mexico, Brazil, and most of the countries of the Caribbean, the percentage of children under 15 was over 40%, generally indicating very young populations. For 1995, with the exclusion of some countries of Central America and Haiti, all have less than 40%, with the lowest percentages in Canada and the United States of America. The largest reduction in children under 15 took place in Puerto Rico, whose percentage declined by 17 points between 1950 and 1995 from 43.3% to 26.3%. Reductions of 10 points or more in the same period were also recorded for the Bahamas, Cuba, Guadeloupe, and Martinique. The most substantial reduction, however, is forecast for 1995 to 2025, when the figures for the Region of the Americas will decline from 29% to 22%, and Latin America will reduce the percentage of children under 15 from 34% to 24%. This phenomenon is attributable to the substantial decline in fertility in recent years, which, interacting synergistically with the above-mentioned decline in mortality, tends to diminish the relative, and in many cases absolute, importance of children under 15 years old. This may be easily confirmed by noting that for 2025 a population of children under 15 years old of 231 million is projected, a figure similar to that of 1995, 226 million. In addition, the number of children under 15 years old is falling in several countries—for example, in Brazil and Colombia.

The counterpart to the reduction in the population of children under the age of 15 is the increase in those 65 and older. At this point it would be well to repeat that the increase in the population 65 and older, which for the entire Region of the Americas was

220% (from 19 million to 61 million between 1950 and 1995), was 340% (from 5.6 million to 24.6 million) in Latin America and the Caribbean . Perhaps the best example of this is the situation of Brazil, whose elderly population will grow from 1.3 million in 1950 to 8.4 in 1995, with an estimated 22.8 million for 2025.

The reduction in the number of children under 15 becomes clearer when considering children in the under-5 age group. In Latin America and the Caribbean, after doubling between 1950 and 1995 (108%), no growth for this group is forecast in the coming 30 years to 2025--that is, a zero growth rate. At the other extreme, the population 65 and older has been growing at an annual rate of 3.3% since 1950. North America, with a lower annual rate of growth for all ages than Latin America and the Caribbean--1.3% versus 2.4% between 1950 and 1995, and 0.7% versus 1.2% between 1995 and 2025--also exhibits lower percentages of change and annual growth rates in the various age groups, with no growth or negative growth in the first age groups. The 45-64 age group also shows unmistakable growth. An important change is projected for North America, with a reduction in the of 5 points in the percentage participation of the 15-44 age group over the next 30 years. A clear indicator of the change in the relative importance of the age groups is the case of North America, the subregion that has advanced most in demographic transition in the Americas. The relative comparison between children under 5 years of age and individuals 65 and older and is very significant: In 1950 the first group easily surpassed the second, 10.9%, compared with 8.1%. By 1995 those 65 and older will surpass the children by 50%, and by 2025 there will be 3 people 65 years of age and older for each child under 5.

Another way to present the changes in age distribution is through an analysis of the relationship between dependency and median age (see HCA, 1994). The usefulness of the dependency relationship is that it makes it possible to present in numerical form the ratio between the number of people who are formally dependent because they are just starting life (children under 15) or are at the end of life (those 65 and older), on the one hand, and the number of people who could also be formally productive, on the other: the group between 15 and 64 years of age. The higher the number the greater the dependency, and consequently the greater the burden on those who producing the goods and services for the entire population. In turn, the distribution of the dependency ratio by the component of children under 15 and the component of those 65 and older provides very useful information, since in social and economic terms the consequences are very different according to whether the dependency concerns the elderly or children. In terms of health, this would be reflected either in problems and services more concerned with geriatrics and chronic degenerative diseases or with maternal and child care and infectious diseases. With regard to the dependency ratio in the countries of the Americas, despite the changes observed between 1950 and 1995 and those forecast up to 2025, this ratio continues to decrease, but with a distinct predominance of children under 15, with the exception of the countries of North America and Barbados, Cuba,

Guadeloupe, Martinique, Puerto Rico, and Uruguay, whose dependency figures for those 65 and older amount to more than 40% of the total value. Except for a few countries, for 1995 all have dependency figures of over 50% for children under 15, and in the case of Nicaragua, as high as 90%; this means that there is 1 person under 15 years of age who depends on each potentially economically active person from 15 to 64 years old. The figure for Canada is 31, which means that each 3 economically active persons have only 1 dependent under 15 years age. For the period 1950-1995 the cases of Brazil, Colombia, Costa Rica, Cuba (which, together with the Bahamas, have the lowest value for the entire Hemisphere in 1995), Guadeloupe, Guyana, Martinique, Puerto Rico, the Dominican Republic, and Suriname stand out in that they have reduced their dependency ratios by more than 20 points.

While the median age for the Americas increased by 2.2 years between 1950 and 1995, and will increase by 7 years in the 30 years from 1995 to 2025, in Latin America the median age increases by 3.5 years in the first period and 9 years in the second. In the Central American countries, with the exception of Costa Rica and Panama, the median age increases more slowly. The country that will increase its median age most, doubling it in the 75 years of the entire period from 18.4 to 36.5 years, is Puerto Rico, which increased its median age by more than half between 1950 and 1995. The other country with a significant estimated increase to the year 2025 is Brazil, which will reach 34.4 years.

1.6 *Urbanization*

The emergence of urban life as the dominant culture, with its multiple facets and problems, which grow like mushrooms as cities expand, becomes a key element in the study of population because of its tremendous repercussions on development and health in particular. What makes urbanization an essential variable for understanding the variety of phenomena that affect the health and well-being of populations is the fact that the new differences in the health of the populations are all present in a single city, and at times are more important than the traditional differences between cities and urban area. Is it possible, for example, to attempt to analyze and understand the phenomenon of violence without including urbanization as a factor?

By 1950 the Region of the Americas already had a moderate degree of urbanization, with more than 50% of the population living in urban areas and with two subregions, North America and the Southern Cone, with the highest levels of urbanization in the world. The high degree of urbanization in the Americas may be appreciated by observing that while the Hemisphere represented slightly more than 13% of the world population, its urban population accounted for 23.7% of the world's urban population.

Urbanization in the Americas, which is generally similar to urbanization patterns at the world level, nonetheless has certain characteristics that differentiate it from other regions in world development. Urbanization had already advanced to a considerable degree by mid-century, indicating that the process had begun long before that time. Although substantial variations exist between subregions and countries, convergence toward high degrees of urbanization by the year 2025 is anticipated, when all the subregions, except for Central America, will conceivably reach percentages of over 70%. By 1995 countries such as Uruguay and Venezuela will already have urban populations of over 90%.

Although urban populations in the various regions of the world, as well as North America, Latin America, and the Caribbean, grew more than rural populations, this increment was much more marked in Latin America. Hence, of the 314 million increase in the total population between 1950 and 1995, 287 million--91%--was in the urban areas. The process is expected to continue for the three next decades, from 1995 to 2025; thus, even the absolute numbers of the rural population will decrease from 121 million in 1995 to 106 million in 2025. In sum, over the entire period 1950 to 2025 the urban population will increase almost ninefold, from 67 million to 585 million, while the rural population will remain almost constant--from 94 million to 106 million. This reduction in the absolute numbers of the rural population has already occurred in the period 1950-1995 in Cuba and Venezuela and in the Southern Cone countries of Argentina, Chile, and Uruguay. With the exception of Venezuela, these countries, especially Argentina and Uruguay, exhibited the highest degrees of urbanization for 1950 in all the Region of the Americas.

Latin America more than quintupled its urban population between 1950 and 1995, moving from 67 million to 354 million, while North America doubled and the Caribbean came just short of tripling its urban population. Analysis by country shows an increase in the urban population between 1950 and 1995 in Brazil (108 million), Mexico (59 million), Colombia (21 million), Argentina (18 million), Venezuela (17 million), Peru (15 million), and Chile (9 million); this means that the urban population in these countries grew by 247 million, or 86% of the total urban growth in Latin America.

For the period 1950-1995, the annual average growth rate for the urban population was 3.8% in Latin America, 2.3% in the Caribbean, and 1.7% in North America, compared with values of 0.6%, 0.6%, and 0.3%, respectively, for the rural population. On comparing these percentages with the rates for the total population, which were 2.4%, 1.4%, and 1.3%, respectively, it is clear that urbanization has been the result of great internal migration and that it will continue over the years to come, although at a lower rate; this is because, on the one hand, rural populations have lost most of the relative weight they formerly had, and on the other, the natural population increase (births minus deaths) has been significantly depressed by the reduction in

fertility. Thus, for 1950-1965 the average annual rate of increase in the urban population in Latin America and the Caribbean was around 4.5%, declining to 4.0% for 1965-1970 and to 2.5% in 1990-1995.

The differences between the urban and rural populations are reflected not only in varying population volumes and growth rates. The different behavior of the demographic variables of mortality, fertility, and migration has led to quite different population structures by age and sex. This is because the process of demographic transition, with its decline in mortality and fertility, took place earlier and more markedly in the cities than in rural areas. Moreover, along with these reductions, migratory flows toward the cities tend to be composed more of younger people, with a predominance of females over males. This leads to different growth rates for the same age and sex, depending on whether the population is urban or rural. Thus, for 1990 in Latin America, children under 15 and those in the 15-49 age group account for 33.7% and 52.6%, respectively, of the urban population, compared with 41.2% and 46.2% in the rural areas; for those 65 and older the differences are smaller: 4.9% in urban areas compared with 4.6% in the rural areas, which demonstrates that in Latin America the rural population is younger than the urban. The differential structure by sex comes to light on observing that the ratio of males to females is, for 1990, 96 men for every 100 women in the urban area, compared with 108 in the rural area. Examination of this relationship by age shows that it is more than 100 in both areas before the age of 15; it drops to below 100 in urban areas beginning at 15 years of age (there are more women than men in the cities), and is the lowest for individuals 65 and older, where it drops to 75. It should be pointed out that this value is 111 in the rural areas. The greatest surplus of men is in the 15-24 age group in the rural areas, where there are 113 men for every 100 women.

The most significant component of urban growth is the growing number and expanding population of the large cities, understood as those with a population of 1 million or more. The 22 cities with 1 million or more inhabitants in 1950 (15 in North America and 7 in Latin America), rose to 46 in 1970 (18 and 28, respectively) and to 76 in 1990 (36 and 40, respectively). The 7 cities in Latin America and the Caribbean in 1950 accounted for 11% of the total population at the time, and the 40 cities of 1990, 31%.

As expected, the greatest population increase in cities with more than 1 million inhabitants took place in countries that in 1950 had a lower percentage of total urbanization. Moreover, the increase was markedly greater in the period 1950-1970. This is the case for the cities with 1 million or more inhabitants in Brazil, Colombia, Haiti, Mexico, Peru, the Dominican Republic, and Venezuela, all of which grew on the order of 200% or more during the 20-year period. Furthermore, the countries in which there was a large proportion of cities with a population of 1 million or more in 1950 (between 32% and 51% of the total population), such as Argentina, the United States of

America, and Uruguay, showed very small increases. For the cities of Latin America the increase is significant and varied, with the exception of Montevideo, whose rate of increase for 1950-1990 was only 12%. In the United States of America the behavior was more erratic, especially in the period 1970-1990, when several cities with 1 million or more inhabitants, such as Cleveland, Detroit, and Pittsburgh clearly lost population. It should be pointed out that in recent decades several cities in North America have been the ultimate destination of international migration currents (with a sizable number of migrants from Latin America and the Caribbean, as already mentioned). This is true of Toronto and Montreal, in Canada, and Fort Lauderdale, Los Angeles, Miami, Phoenix, Riverside, Sacramento, San Diego, and San Jose in the United States of America. In the past 20 years, the cases of New York and Chicago have been somewhat special, since international immigration has noticeably increased; at the same time, however, migration from those cities has also occurred, leading to a somewhat stable population numbers.

Other urban areas with populations 500,000 to 1 million are also important, although less so than the cities with 1 million or more. There were 51 such cities in Latin America and the Caribbean in 1990, with roughly 34 million inhabitants.

Of particular importance in urban growth are the cities with populations of over 5 million and the "megalopolises" with more than 10 million inhabitants. In 1950 there were only 8 cities in the world with populations of more than 5 million and only 1 with more than 10 million, New York. The other city in the Region of the Americas that numbered among those 8 was Buenos Aires, with slightly over 5 million. In 1970 the number of cities with more than 5 million inhabitants rose to 21 (3 of which are megalopolises); 3 of these are located in the United States of America—New York, Los Angeles, and Chicago—and four in Latin America—Buenos Aires, Mexico City, Rio de Janeiro, and São Paulo. In 1990 this number reached 35, 8 of which were in the Americas, 5 in Latin America and 3 in the United States of America. The trend has generally been toward greater growth of the large cities in the developing countries, taking the lead away from the cities in the developed countries. Thus, in 1950 while there were only two Third World cities among the world's 10 largest, of the 13 cities with populations of over 10 million in 1990, 9 were in the developing countries, including 4 in Latin America: Buenos Aires, Mexico City, Rio de Janeiro, and São Paulo. Lima will be added to this list in 2010.

1.7 *Population Policies*

According to a worldwide study conducted by the United Nations in 1990 (*World Population Monitoring*, 1991) on population perceptions and policies, replies were received from 35 countries in the Region of the Americas: 33 in Latin America and the Caribbean, and 2 in North America, Canada and the United States of America. In 17 of the 33 countries of Latin America and the Caribbean it was considered that their

growth rates were too high in 1990, and information was provided on intervention policies designed to reduce them. Of the 13 Caribbean countries considered, 10 were part of the group of 17, the exceptions being Antigua and Barbuda, the Bahamas, and Cuba. Trinidad and Tobago's perceptions and policies with regard to its growth rate are representative of the Caribbean countries. Population growth places a burden on government resources, and consequently direct support should be provided to family planning and diversifying the economy, since demographic variables are part of the development process. The Government of Cuba considers its demographic trends to be satisfactory and has not applied explicit intervention policies to modify its growth and fertility rates; among Cuba's population policies figure measures to facilitate access to contraception, ensure full employment, incorporate women into development activities, and guarantee access by the entire population to education and health services.

One of the first countries in the Region of the Americas that considered its population growth very high and that is taking steps to change the situation is Mexico. It established a National Population Council, based on the World Population Plan, in order to implement a national population policy.

Countries in Central America, such as Costa Rica, El Salvador, Honduras, and Nicaragua, have expressed a desire to lower their growth rates. In the case of Honduras, the objectives are to lower fertility levels, dampen migratory currents, and improve areas such as education and employment opportunities, especially for women. In contrast with the Caribbean, 7 of the 12 countries of South America considered their growth rates to be satisfactory and do not report any direct interventions to modify them. In Brazil, the most populous country in Latin America and the Caribbean, the national population policy is based on two premises: the first is respect for the autonomy of the states in formulating and implementing their population policies; and the second is recognition that economic and social development plays a major role in the solution of demographic problems. Venezuela follows guidelines similar to those of Brazil, although without the explicit purpose of reducing its fertility. The Venezuelan Government has gradually expanded family planning activities, essentially for health reasons. Ecuador and Peru consider their rates to be high and report on policies designed to reduce them; Ecuador has set up the National Development Council to formulate and implement such policies, since it has already included them in its national legislation, as has Peru.

Three countries in Latin America consider their growth rates to be low: Argentina, Bolivia, and Uruguay, whose rates for 1985-1990 were estimated at 1.2%, 2.8%, and 0.6%, respectively.

In North America, both Canada and the United States of America consider their growth rates satisfactory and are not intervening directly to modify them. In the early 1990s the two countries had an approximately 0.8% natural increase (births less deaths),

accounting for three-fourths of their growth, with the remainder deriving from immigration.

With respect to fertility in Latin America and the Caribbean, 14 of the countries reported that they were satisfied with their fertility rates. Two reported interventions: Colombia, in order to lower its rate, and Barbados in order to maintain it. Of the 18 countries that considered their fertility rates high, all, except for Bolivia and Saint Lucia, carried out interventions to reduce them. The only country in the subregion that reported a desire to increase its growth rate was Uruguay, whose rate for 1990-1995 is estimated at 2.3 children per woman. El Salvador's population policy with respect to fertility includes elements such as increasing the coverage and quality of health and reproductive services and promoting responsible paternity. Several countries have taken steps to improve maternal health. This is true of Bolivia, which has passed legislation establishing an prenatal subsidy during the first five months of pregnancy and has increased maternity benefits by 50%; Costa Rica has extended the period for maternity benefits from two to four months; Saint Vincent and the Grenadines introduced maternity benefits for women covered by the social security system, in which maternity benefits are paid for 13 weeks and a payment is made for the birth of each child; and Brazil, as part of the changes in its new Constitution, has increased maternity leave from 90 to 120 days.

The persistence of relatively high levels of fertility among adolescents 15-19 years of age has spurred many governments to consider it a serious problem. They have therefore established programs to postpone the age of marriage, increase the legal age of marriage for women, strengthen family planning programs, and improve information, education, and communication campaigns.

Of the 33 countries that replied to the survey, 29 provide support for programs of family planning through modern methods, 3 indirectly support family planning, and only Bolivia fails to provide this service. Of the countries of North America, both Canada and the United States of America had low fertility rates (1.7 and 1.8 children per woman, respectively, in 1985-1990), consider their fertility satisfactory, and do not intervene to modify them. The two countries directly support family planning by providing modern contraceptive methods.

Abortion is prohibited or strictly regulated in the vast majority of the countries of the Region, with the exception of Canada, Cuba, and the United States of America. In countries in which the interruption of pregnancy is illegal, no reliable information sources exist, which limits analysis of the quantification of this method as a regulator of fertility and, consequently, of population growth. In the case of Cuba, the only country in Latin America in which women have legal access to pregnancy interruption, the incidence of abortion rose from 66 to 83 abortions per 100 live births in the period from

1975 to 1987. Both Canada and the United States of America had moderate increases between 1975 and the beginning of the 1980s, followed by stabilization or small decline. Canada moved from 13 to 17 abortions per 100 live births between 1975 and 1985, while the United States of America showed an increase from 33 to 43 between 1975 and 1980, declining slightly to 42 in 1987.

Most of the countries of Latin America and the Caribbean have moderate and high levels of contraceptive use, with the exception of Haiti, where only 10% of the women used contraceptives in 1989. The estimate for 1987 on the extent of contraceptive use in Latin America was 56%, ranging (with the exception of Haiti) from 23% in Guatemala to 69%-70% in Costa Rica, Cuba, and Puerto Rico. The most populous countries have relatively high levels: 65% in Brazil and Colombia, and 53% in Mexico. In Canada and the United States of America contraceptives use ranges between 73% and 74%. In Latin America 83% of women who use some kind of contraceptive method use modern methods (pills, sterilization, injectables, intrauterine devices), and this percentage is 92% in North America.

Despite successes in reducing mortality, many countries have expressed concern in this respect. Of the 33 Latin American and Caribbean countries, 12 considered their life expectancy at birth to be satisfactory in 1990. Of the 21 countries that had levels of under 70 years in the late 1980s, 19 considered that level to be unacceptable, and of the 12 remaining countries with levels higher than or equal to 70 years at that same time, 2 also considered them to be unacceptable. Both Canada and the United States of America, with life expectancies at birth of 77 and 75 years, respectively, considered these to be acceptable in 1990.

Latin American and Caribbean countries continue to find their population distribution patterns unacceptable, a perception related to the increase in the number of large cities and the growing problems encountered in managing such urban areas. In 1990 only two countries in the area, Barbados and Saint Lucia, considered their population distribution patterns satisfactory, while 24 countries noted that their population distribution required fundamental changes; 7 countries desired smaller changes. In Barbados, as a strategy to decrease the growth of Bridgetown, the government provides subsidies, grants, loans, and tax incentives to companies willing to locate outside the capital city. Infrastructure, communications, and rural services are also being held out as additional incentives. In Jamaica, since growth has concentrated in the metropolitan area of Kingston, the government has formulated policies aimed at industrial deconcentration and rural development.

With regard to Central America, for several years the Government of Costa Rica has promoted programs for industrial decentralization and rural development, emphasizing health and social services in the rural area. Guatemala wishes to increase

migration to areas other than Guatemala City, and to this end has promoted rural-rural migration. Honduras is encouraging the development of cities outside the central corridor.

In South America, Argentina has adopted policies to reduce migration toward Buenos Aires and encourage migration toward other urban and rural areas. Brazil wishes to diminish the concentration of the population of its large cities and promote economic growth in outlying areas. The steps taken include guidelines for investment in cities of intermediate size in order to spur their economic growth and institute a process of urban deconcentration. In the official population policy in Chile, the population is encouraged to colonize underpopulated regions. To this end roads have been built in remote areas in the southern part of the country to link these colonies to other regions of Chile. Colombia has promoted foreign investment in cities other than Bogota, Cali, and Medellin. Ecuador is also promoting development outside Guayaquil and Quito.

Finally, in Canada, measures have been adopted to improve labor mobility between regions. Programs such as the Manpower Mobility Program and the National Job Bank promote internal migration, although redistribution of the population is not the primary objective.

Perceptions and government policies in Latin America and the Caribbean with respect to international migration are quite different from those in the rest of the world, since many Latin American governments consider migration to their countries to be very low and, like Canada and the United States of America, currently seek to increase immigration. Consistent with this, most Latin American and Caribbean countries consider their levels of emigration high and have implemented policies to reduce them. This atypical pattern of concern with regard to immigration and emigration can, at the same time, easily be explained by the long tradition of immigration in the Region of the Americas, both in North America and in Latin America and the Caribbean. Several Latin American countries offer little attraction to those in search of stable places to settle, owing to economic stagnation and their political situation; at the same time, these countries are experiencing population losses due to emigration, especially among skilled workers who migrate to the United States of America. In addition to the United States of America, the Mediterranean countries of Europe, especially Spain and Italy, must be added as the destination of Latin American emigrants, since their economic conditions are better and their immigration laws with respect to Latin America are less stringent. Added to this phenomenon is the prospect of free movement within the European Community and the harmonization of immigration policies, which serve as a magnet for emigration from Latin America.

2. Economic, Political, and Social Trends

2.1 *Production*

After the foreign debt crisis of 1982, which revealed how vulnerable their economies were to developments in the world market, the countries of Latin America and the Caribbean began to show signs of economic recovery in the second half of the 1980s that continued into the early 1990s.

In 1993 most of the economies of Latin America and the Caribbean entered into their third consecutive year of moderate expansion, exhibiting relative price stability and a substantial inflow of foreign capital. Since the mid-1980s GDP has been growing, but only in 1991 did it began to surpass population growth, and as a result, increase per capita GDP. GDP grew by 3.8% in 1991 and 3.0% in 1992, while the preliminary estimate for 1993 was 3.2%. The recovery in recent years has led to a situation in which the cumulative 10.3% growth in regional GDP in the period 1991-1993 is only slightly less than the percentage chalked up during the 10 years from 1981 to 1990, 12.4%. Economic growth is not homogeneous in the various countries, since there are economies whose GDP growth rate in the 3 years from 1991 to 1993 is negative, as in the case of Barbados, Haiti, Nicaragua, and Suriname. In contrast, Argentina, Bahamas, Chile, and Panama show cumulative increases of over 20% in GDP during that time period (see Annex).

The per capita GDP of Latin America and the Caribbean (see Annex) grew at a moderate rate, exhibiting recovery in 1991, 1992, and 1993. During these years it was 1.8%, 1.1%, and 1.3%, respectively, for a cumulative total of 4.3% during the 3-year period. This figure contrasts with the cumulative figure of -8.9% in the 1981-1990 decade, although it means that 1993 income was 5% lower than that corresponding to 1980 and equivalent to that of 1978. The individual country behavior in most of the countries reveals that the per capita income level was lower than in 1980, with the exception of the countries of the Organization of Eastern Caribbean States (Antigua and Barbuda, Dominica, Grenada, Saint Kitts and Nevis, Saint Lucia, and Saint Vincent and the Grenadines), Bahamas, Belize, Chile, Colombia, Costa Rica, Jamaica, Panama, and Uruguay; that is, only 14 of the 34 countries have per capita GDP levels that are higher than they were in 1980. Argentina recovered its 1980 level only in 1993, and the remaining countries show negative growth figures, some of them with less than 25% of the per capita income in 1980: Haiti, Nicaragua, Peru, Trinidad and Tobago, and Suriname. An element of comparison that is should be noted is the fact that during the decade from 1981 to 1990 the only countries of the Region that exhibited positive per capita GDP growth were the island nations of the non-Latin Caribbean, with the exception of Trinidad and Tobago.

The economic results are the product of the measures instituted in the adjustment programs. These began when, having received substantial positive transfers of resources from abroad, Latin America was forced to generate a net transfer of resources to the exterior on the order of $20,000 million in 1982. After a period marked by the implementation of measures usually designed solely to generate resources to pay the debt, without an adequate analysis of the situation of the international market and the medium-term consequences for inflation and fiscal deficit, it was only in the late 1980s that, with the exception of Bolivia, Chile, and Mexico, a consensus began to emerge between politicians and those responsible for economic policy. The consensus reached was that the only way to break the stagnation was to open up the economies. Many politicians who had historically inclined toward a large public sector began to support radical measures that involved strict fiscal discipline, an opening up to international trade, and massive privatization programs. A key element has been the understanding that macroeconomic instability and inflation are structural aspects that not only prevent long-term growth, promote capital flight, and discourage national savings but also promote social injustice by their effect on consumption capacity, job creation, and infrastructure development.

The key elements of the adjustment programs being carried out in Latin America and the Caribbean are: a) fiscal adjustment, with its dual component of reducing public spending and reforming the tax systems; b) control of domestic credit, both private and public; c) devaluation of the exchange rate aimed at bolstering international competitiveness; d) drastic reductions in tariffs and barriers to foreign trade; and e) privatization and deregulation as a means of ensuring that the market is the principal element in the allocation of resources.

One element of economic policy that it has still not been possible to improve is the level of domestic savings. The World Bank, in its 1993 Report, estimated that the median ratio of savings to GDP is 20%, a value 10 points lower than that of the economies of the East Asian countries, which limits the rate of capital accumulation and new investment in infrastructure. A negative consequence stemming from this state of affairs is the deterioration in the basic infrastructure. This has occurred in both the sectors directly related to production, energy, transportation, communications, port operation and in basic sanitation and the buildings and basic equipment for two of the most important social sectors, education and health.

2.2 *Inflation*

Inflation continues to abate in the majority of the countries, and prices are stabilizing, although for some countries these remain a serious problem. In contrast to this widespread trend, from 1988 to 1993 (except for 1991) Brazil was subjected to an inflation that approached or even exceeded 1,000% a year, surpassing 2,000% in 1993.

For the remainder of the countries, however, the average increase in consumer prices fell from 49% in 1991 to 22% in 1992, and 19% in 1993, with most countries exhibiting annual an inflation rate below 15% in 1993 (see Annex). Significant among them were Argentina, Bolivia, Mexico, and the Dominican Republic, all of which cut their rates to less than 10%.

2.3 *Foreign Trade*

The value of exports grew in the Latin American and Caribbean countries from $102,000 million in 1988 to $121,000 million in 1991, $127,000 million in 1992, and $133,000 million in 1993. It should be noted that this increase has taken place within the context of shrinking imports by the industrialized countries. At this point it should be added that this phenomenon is due to the diversification of Latin America's exports, the increased trade among the countries of Latin America, and an increase in the physical volume of these exports, since unit prices and trade relations continue to deteriorate. Moreover, imports have a higher growth rate than exports. Thus, the value of imports in 1988 was $77,000 million, with a positive trade balance of $25,000 million, and in 1993, with five uninterrupted years of rising imports, this figure reached $148,000 million, with a negative balance for the second consecutive year. The policy of opening up to foreign trade is a constant through the diversification of imports and the consumption of a number of goods being satisfied through imports. The implications of subregional agreements such as MERCOSUR and NAFTA are obvious and, generally speaking, positive. The implications of the final agreement that emerged from the Uruguay Round of the GATT are not quite so clear, since these negotiations took place essentially between the developed countries.

2.4 *Foreign Debt*

While the foreign debt situation has shown a certain degree of improvement in terms of the interest and export indicators, it nevertheless remains a basic problem; after three years of stabilization in 1987-1989, the total debt of roughly $420,000 million began to rise, reaching $497,000 million in 1993, a figure 15% higher than in 1989. Almost half of this increase is attributable to Mexico, whose debt rose from $95,000 million to $125,000 million in the period 1989-1993.

Interest payments on the debt as a proportion of exports have shrunk over a period of 10 consecutive years, declining from 39% in 1982-1983 to 18% in 1993, although the figure has remained above 20% for several countries in the Region (Bolivia, Peru, Argentina, Brazil, and Honduras). This means that these payments continue to absorb a good proportion of the foreign exchange that is acquired through foreign trade. Special mention should be made of Nicaragua, whose rate exceeds 100%. Part of the

drop in this coefficient is the result of the decline in interest rates, since interest payments have fallen from $38,000 million in 1989 to $29,000 million in 1993.

Given the negative trade balance and the interest payments, the Region's current accounts balance continues to decrease, from -$7,000 million in 1989 to -$43,000 million in 1993. What has truly increased, however, is the net flow of capital to the Region, which has risen from $10,000 million in 1989 to $55,000 million in 1993. This means that international reserves grew for five consecutive years, reaching $12,000 million in 1993.

The dynamics of the Latin American economy in recent years may be appreciated by noting that the price of external debt notes on the secondary market, as a percentage of their nominal value, rose from a weighted average of 32.5% in January 1991 to 62.8% in October 1993 (ECLAC). Moreover, after a period in which international, private, and public bond issues were almost nonexistent, they have now become a dynamic element, with new issues reaching $19,000 million in 1993 from a level of less than $1,000 million in 1989.

Both capital revenues and bond issues are in many cases short-term placements and are very sensitive to developments in the international markets. This means that some of the favorable elements of the Regions' economic behavior are very vulnerable to external events, a situation that continues to reduce the economies' room to maneuver.

2.5 *Employment*

Employment figures reveal that unemployment has been reduced in recent years in Latin America. Urban unemployment, for example, has shrunk in almost all the countries in the Region in the period 1989-1993, except in Argentina, Brazil, Ecuador, and Peru, where unemployment has tended to rise, although not very significantly. Of the 17 countries for which information on urban unemployment in 1991 or later was available, only Panama had unemployment of over 10%, with 12.4% in 1993. An significant case is that of Chile, where unemployment was reduced by more than 50%, from 10.2% to 4.7%, between 1998 and 1993.

In 1980 the average rate of urban unemployment in the Region was 6.7%; by 1984 it had risen to 10.0%, and by 1991 to 7.8%. The evolution of unemployment in the various countries shows a similar trend, although the rates of reduction may differ. Although urban unemployment exhibits a downward trend, this does not necessarily point to an increase in jobs. Rather, it indicates that informal employment is growing, a process that the economies have witnessed since the recession of the 1980s and one that is tending to increase, since economic growth has not generated the formal employment required for growing populations. This process has been of such magnitude that in

Argentina, Chile, Colombia, and Mexico, for example, the informal sector absorbs more than 30% the work force, and in Brazil and Venezuela, more than 25%. In countries such as Guatemala, Haiti, and Peru it is estimated that this figure is more than 40%.

Another of the changes confirmed in this profile is linked with the increasing participation of women in the economically active population. An estimate for a group of countries for which data from household surveys was available showed a nearly 20% rise in the rate of participation, increasing from 31.9% in 1980 to 37.8% in 1989.

Thus far, employment policy has not kept pace with economic policy. The failure to create new jobs is attributable chiefly to two factors that have contributed to economic growth: labor-saving technology and sophisticated technology that requires higher skill levels. Growth without employment may be attributable to the fact that the increase in production has been due more to technological development than to an increase in new investment to create jobs. The consequences of the economic phenomenon of recent years as it relates to the work force would seem to be manifested in a twofold phenomenon: economic growth, measured in terms of the GDP, but without the creation of new jobs in the fields of activity in which it has occurred.

2.6 *Poverty*

Despite the signs of economic recovery, in the social sphere the countries continue to demonstrate significant weakness in their ability to expand the services that can eradicate or mitigate poverty. Latin America is one of the regions of the world with the most unequal distribution of income and where the incidence of poverty is very high. This was true before the debt crisis, and the economic measures implemented have only exacerbated the situation. During the 1980s poverty increased in Latin America and the Caribbean, and the distribution of income worsened.

Taking household income as an indicator, it has been estimated that toward the close of the 1980s there were nearly 183 million poor people in Latin America, or 71 million more than in 1970. Of this total, around 88 million were indigent. Toward the end of the 1980s, poverty in absolute terms was greater in the cities than in rural areas, reinforcing the prevailing trend.

Another element related to the adjustment programs that tends to exacerbate the poverty described above is the reduction in social expenditure, particularly in the area of public health. Nearly all the countries have cut back on public spending on health.

The crucial questions at the present time are how to increase complementarity between reforms as a means of recovering growth and what measures must be taken to reduce injustice. This leads to the need to reallocate public expenditure drastically and

rapidly in order to eradicate the most negative manifestations of short-term poverty without destabilizing public finances and inflation control. The challenge lies in devising innovative programs that can improve the situation of the most vulnerable population groups. This could be achieved without upsetting the gains obtained in fiscal balance. The poorest 20% of the population receives 4% of the GDP, while public expenditure represents around 25% of GDP. Reallocation of from 10 % to 15% of public expenditure specifically to the most vulnerable groups could significantly increase the well-being of these sectors and achieve an appreciable impact. In addition, merely expanding the tax base in the middle- and high-income sectors that evade the current taxation systems could increase the amount of resources allocated to social programs that at this time are being adversely affected by the current programs.

2.7 *Democratization in the 1990s*

A democratic trend in the Region can be discerned in the 1990s following the disappearance of the majority of the authoritarian governments.

Notwithstanding this political opening, at the beginning of the decade the future of the democratic regimes is questionable, given the inflexibility of the economic models in responding to social demands.

The crisis of the State, visible at the end of the authoritarian regimes, makes it clear that the new democratic regimes cannot combine their operation with a revitalization of some of the institutions that had characterized them in the past—in particular, the implementation of social policies as central institutions of the democratic State. It is in this context that the customary manifestations of violent political struggle, though rare, have reappeared in the Region in the form of coups, military uprisings, and the dissolution of legislatures; to these should be added accusations of corruption at the highest levels and the presence of the illegitimate force of drug trafficking. Within a framework of vast social contrasts these phenomena have brought significant discredit to the political system and a dissatisfaction with the political conduct of the State that has manifested itself in constant changes in political parties in the governments in the Region.

Although the interruption of institutional life in Haiti and the removal of its constitutionally elected President in September 1991, followed by the dissolution of the Peruvian Congress in March 1992 and the military insurgencies in Venezuela that same year, might conceivably inspire fear of a recurrence of the de facto situations of previous decades in Latin America, the way in which Brazil, Guatemala, and Venezuela resolved their crises was a breath of fresh air for the political systems of those countries, opening up pathways for the rest of the countries to resolve conflicts within the State, while upholding the law and fully exercising democratic constitutional mechanisms.

Haiti is the most complex situation, but international action is playing a key role in a negotiated return of its constitutionally elected President. With this situation, 1993 ended a cycle of political uncertainty, exhibiting a clear-cut trend toward the expression of regional democratic will. Other positive elements for the democratization process have been the holding of elections and the subsequent peaceful transfer of power.

Finally, it is not possible to close this account of the progress made in this area without mentioning the decline in political violence. An example of this is the signing in Chapultepec Palace in January 1992 of the El Salvador Peace Accords, the fruit of prolonged negotiations in which several countries and the United Nations took part. Another element in this same vein is the gradual reduction in violence and terrorism, as well as in the disappearances and illegal executions stemming from military actions in Peru, and the negotiations that have taken place between guerrilla forces and the Government of Guatemala.

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TABLES, SOURCES

Table 1: Mortality by Cause

Countries and Subregions	Age-adjusted mortality rate Malignant*/ Tumors (1985-1989)		Age-adjusted mortality rate Circulatory*/ System (1985-1989)		Age-adjusted mortality rate Accidents and Violence*/ (1985-1989)		Age-adjusted mortality rate Communicable Diseases*/ (1975-1979)		Age-adjusted mortality rate Communicable Diseases*/ (1985-1989)	
	M	F	M	F	M	F	M	F	M	F
Andean Area										
Bolivia	...	...	...	...	...	...	...	...	...	...
Colombia	95	119	236	277	237b/	41b/	198.0	170.4	85	75
Ecuador	91	122	170	202	133b/	45b/	318.6	291.8	190	178
Peru	113	138	186	209	93	33	528.1	500.0	323	315
Venezuela	98	106	237	233	126	32	143.1	125.7	94	82
Southern Cone										
Argentina	136	107	309	269	80	30	78.4	64.4	53	44
Chile	133	132	196	199	133	35	167.3	137.4	89	75
Paraguay	83	93	290	307	80	27	245.5	216.6	166	140
Uruguay	183	140	256	251	79b/	29b/	67.7	56.6	38	37
Brazil	94	102	266	311	127	44	255.3	195.6	165	127
Central American Isthmus										
Belize	...	...	...	...	...	...	...	...	...	...
Costa Rica	117	110	160	160	72	23	87.5	75.8	36	33
El Salvador	56a/	86a/	115a/	192a/	283b/	49b/	447.2c/	419.5c/	237a/	199a/
Guatemala	55a/	90a/	127a/	155a/	202a/	40a/	767.3c/	769.1c/	471a/	480a/
Honduras	50a/	93a/	185a/	223a/	164a/	30a/	559.2c/	526.1c/	292a/	265a/
Nicaragua	67	114	200	269	133b/	54b/	416.7	395.7	217	209
Panama	94	102	182	211	105	31	124.4	121.8	69	63
Mexico	68	81	145	163	150	37	242.9	172.4	128	113
Latin Caribbean										
Cuba	108	89	209	221	91b/	45b/	63.2	60.6	42	39
Dominican Republic	...	...	256a/	295a/	94	28	291.1c/	263.5c/	156a/	140a/
Haiti	...	...	...	...	...	...	...	...	...	...
Puerto Rico	92	68	261	175	106b/	21b/	54.8	44.8	46	35
Non-Latin Caribbean										
Anguilla	...	...	...	...	...	...	...	...	...	...
Antigua and Barbuda	...	...	...	...	...	...	...	...	...	...
Netherland Antilles	...	...	...	...	...	...	...	...	...	...
Aruba	...	...	...	...	...	...	...	...	...	...
Bahamas	...	...	...	...	...	...	...	...	...	...
Barbados	85	106	219	223	54	17	72.9	62.8	36	29
Dominica	...	...	...	...	...	...	...	...	...	...
Grenada	...	...	...	...	...	...	...	...	...	...
Guadeloupe	...	...	...	...	...	...	...	...	...	...
Guyana	...	...	...	...	...	...	...	...	...	...
French Guiana	...	...	...	...	...	...	...	...	...	...
Cayman Islands	...	...	...	...	...	...	...	...	...	...
Turks and Caicos Islands	...	...	...	...	...	...	...	...	...	...
Virgin Islands (USA)	...	...	...	...	...	...	...	...	...	...
British Virgin Islands	...	...	...	...	...	...	...	...	...	...
Jamaica	...	...	...	...	32	10	...	...	...	...
Martinique	...	...	...	...	...	...	...	...	...	...
Montserrat	...	...	...	...	...	...	...	...	...	...
Saint Kitts and Nevis	...	...	...	...	...	...	...	...	...	...
St. Vincent and the Grenadines	...	...	...	...	...	...	...	...	...	...
Saint Lucia	...	...	...	...	...	...	...	...	...	...
Suriname	...	...	...	...	...	...	...	...	...	...
Trinidad and Tobago	95	98	298	300	88	28	103.9	93.6	53	44
North America										
Bermuda	...	...	...	...	...	...	...	...	...	...
Canada	140	115	223	173	60b/	23b/	23.8	20.2	19	19
United States	137	114	239	218	80	29	27.5	22.0	28	25

*/ Rate per 100,000 inhabitants
a/ (1980-1984)
b/ (1990)
c/ (1970-1974)

Table 2: Morbidity

Countries and Subregions	MEASLES		MALARIA		AIDS			CHOLERA			
	Cases	Deaths	Cases		Cases		Deaths Cum. Total	Cases		Deaths	
	1993	1990	1985	1990	1993	Cum. Total		1992	1993	1992	1993
Andean Area	33,972	251	14,354	27,475	1,350	9,630	4,853	284,743	87,623	1,544	874
Bolivia	2,702	20	55,791	129,377	20	87	65	22,260	9,189	383	230
Colombia	5,668	55	68,989	46,859	519	4,583	2,312	15,129	230	158	4
Ecuador	3,628	94	35,026	95,222	85	381	258	31,870	6,347	208	55
Peru	1,730	29	9,718	12,539	226	1,068	380	212,642	71,448	727	575
Venezuela	20,244	53			500	3,511	1,838	2,842	409	68	10
Southern Cone	3,638	...	...	...	1,338	5,281	2,048	626	2,077	16	33
Argentina	1,555	10	774	758	1,093	3,904	1,268	553	2,070	15	33
Chile	1	...	-	2	112	831	489	73	28	1	-
Paraguay	2,066	28	4,568	...	30	77	48	-	3	-	-
Uruguay	16	...	...	...	103	469	243	-	-	-	-
Brazil	4,326	354	401,904	466,190	8,271	49,312	19,513	30,054	49,956	359	535
entral American Isthmus	...	...	13,905	...	1,564	5,981	2,037	29,539	45,756	368	587
Belize	...	...	2,800	...	29	82	46	159	135	4	3
Costa Rica	579	...	734	5,033	109	587	362	12	4	-	-
El Salvador	38	...	44,473	3,887	177	630	144	8,106	6,573	45	27
Guatemala	17	5,085	54,958	...	118	499	188	15,395	30,604	207	306
Honduras	13	195	33,828	44,513	947	3,473	877	384	1,925	17	27
Nicaragua	339	609	15,130	44,037	17	66	48	3,067	6,473	46	220
Panama	90	77	126	481	167	644	372	2,416	42	49	4
Mexico	169	5,899	116,016	15,793	5,095	18,853	10,366	8,162	10,712	99	193
Latin Caribbean	...	...	...	...	341	7,565	927	-	-	-	-
Cuba	...	...	457	10	67	245	148	-	-	-	-
Haiti	...	...	12,631	853	...	4,967	297	-	-	-	-
Puerto Rico	...	...	1	...	...	12,131a/	7,102a/	-	-	-	-
Dominican Republic	4,637	15	816	987	274	2,353	482	-	-	-	-
Non-Latin Caribbean					1,153	6,014	4,000	584	68	9	2
Anguilla	...	...	...	...	-	5	3	-	-	-	-
Antigua and Barbuda	...	...	...	...	7	34	5	-	-	-	-
Netherland Antilles	...	...	...	...	47	157	79	-	-	-	-
Aruba	...	...	...	...	...	...	...	-	-	-	-
Bahamas	...	...	...	...	297	1,389	737	-	-	-	-
Barbados	...	...	...	...	88	418	323	-	-	-	-
Dominica	...	...	2	-	14	26	11	-	-	-	-
Grenada	...	...	1	...	21	58	41	-	-	-	-
Guadeloupe	...	...	-	...	-	353	216	-	-	-	-
Guyana	...	...	7,900	33,172	100	465	366	556	66	8	2
French Guiana	...	...	691	3,974	...	232	144	16	2	-	-
Cayman Islands	...	...	...	...	-	15	13	-	-	-	-
Turks and Caicos Islands	...	...	...	...	14	39	30	-	-	-	-
Virgin Islands (USA)	...	...	-	...	...	...	...	-	-	-	-
British Virgin Islands	...	...	...	...	1	6	1	-	-	-	-
Jamaica	...	...	2	6	236	669	460	-	-	-	-
Martinique	...	...	13	...	26	266	184	-	-	-	-
Montserrat	...	...	...	...	1	7	-	-	-	-	-
Saint Kitts and Nevis	...	...	...	...	3	41	27	-	-	-	-
St. Vincent and the Grenadines	...	...	...	...	8	56	51	-	-	-	-
Saint Lucia	...	...	-	...	12	56	51	-	-	-	-
Suriname	...	...	1,635	...	35	177	158	12	-	1	-
Trinidad and Tobago	...	...	19	8	243	1,545	1,100	-	-	-	-
North America	...	...	...	...	105,477	421,641	227,567	103	18	18	-
Bermuda	...	...	...	...	15	223	162	-	-	-	-
Canada	187	...	...	...	994	9,511	6,534	-	-	-	-
United States	281	75	1,037	...	104,468a/	411,907	220,871	103	18	1	-

a/ Puerto Rico is included in the total for the United States.

Table 3: Food and Nutrition

Countries and Subregions	Low weight 0-4 years (1980-1992)		Per capita daily availability of calories (1988-1990)	Daily calories as a % of the requirement (1988-1990)	Per capita daily availability of proteins (1990)	Index of food production (1979-1981=100) (1990-1992)		Food dependence (%) (1988-1990)
	Moderate	Severe				Total	Per capita	
Andean Subregion								
Bolivia	13	3	2,010	83	52	154	117	11.6
Colombia	10	2	2,450	104	57	140	113	10.2
Ecuador	17	-	2,400	106	50	146	110	13.9
Peru	11	2	2,040	89	51	120	94	27.1
Venezuela	6	...	2,440	100	58	132	100	43.2
Southern Cone								
Argentina	...	...	3,070	130	98	113	97	0.4
Chile	3	-	2,480	104	70	139	116	10.5
Paraguay	4	1	2,680	115	68	142	102	1.1
Uruguay	7	2	2,690	96	83	122	114	8.8
Brazil	7	1	2,730	114	62	138	111	3.1
Central American Isthmus								
Belize	...	...	2,580	114	68	119	90	40.4
Costa Rica	6	...	2,710	120	64	132	97	30.2
El Salvador	15	...	2,330	102	55	123	105	24.5
Guatemala	34	8	2,250	101	55	133	97	18.5
Honduras	21	4	2,210	91	55	133	92	13.7
Nicaragua	11	1	2,240	100	53	86	63	26.9
Panama	16	...	2,270	100	59	110	87	24.8
Mexico	14	...	3,060	132	82	128	100	24.8
Latin Caribbean								
Cuba	8	...	3,130	137	72	104	94	...
Haiti	37	3	2,010	94	47	99	80	26.2
Puerto Rico	...	...	...	...	...	...	...	...
Dominican Republic	10	2	2,310	100	50	111	86	38.3
Non-Latin Caribbean								
Anguilla	...	...	...	...	...	...	...	...
Antigua and Barbuda	...	...	2,310	...	80	...	...	83.4
Netherland Antilles	...	...	...	...	81	...	...	...
Aruba	...	...	...	...	...	...	...	...
Bahamas	...	...	2,780	...	79	...	...	63.5
Barbados	...	...	3,220	128	99	...	...	71.7
Dominica	...	...	2,910	100	75	...	...	66.4
Grenada	...	...	2,400	...	62	...	...	77.5
Guadeloupe	...	...	...	...	91	...	...	...
Guyana	18	...	2,500	108	65	66	62	22.6
French Guiana	...	...	...	...	101	...	...	...
Cayman Islands	...	...	...	...	...	...	...	...
Turks and Caicos Islands	...	...	...	...	...	...	...	...
Virgin Islands (USA)	...	...	...	...	...	...	...	...
British Virgin Islands	...	...	...	...	...	...	...	...
Jamaica	...	...	2,560	115	62	...	...	63.7
Martinique	7	1	...	...	88	...	...	...
Montserrat	...	...	...	...	...	...	...	...
Saint Kitts and Nevis	...	...	2,440	...	70	...	...	86.4
St. Vincent and the Grenadines	...	...	2,460	99	57	...	...	113.1
Saint Lucia	...	...	2,420	102	70	...	...	75.7
Suriname	...	...	2,440	...	60	101	83	39.6
Trinidad and Tobago	7	-	2,770	120	65	105	91	80.8
North America								
Bermuda	...	...	...	...	106	...	...	...
Canada	...	...	3,447	...	101	125	111	...
United States	...	...	3,666	...	111	108	97	...

a/ For both sexes

Table 4: Drinking Water Supply
(Circa 1992)

Country	Population (In thousands)			Drinking water supply							
				Total Population Served		Urban Population				Rural Population	
	Total	Urban	Rural	Population	%	Household connection	Easy access	Total	%	Total	%
Argentina	31,074.00	26,219.00	4,855.00	19,971	64	18,208	944	19,152	73	819	17
Bahamas	264.00	218.50	45.50	255	97	189	22	211	97	44	98
Barbados	257.00	90.00	167.00	257	100	88	2	90	100	167	100
Belize	184.00	87.00	97.00	134	73	80	3	83	95	51	53
Bolivia	6,421.00	3,695.00	2,726.00	3,574	56	2,993	...	b/ 2,993	82	581	21
Brazil	149,085.00	11,6285.00	32,800.00	137,350	92	104,200	11,000	115,200	99	22,150	68
Chile	13,232.00	10,814.00	2,418.00	11,554	87	10,655	159	10,814	100	740	31
Colombia	33,951.90	22,883.08	11,068.82	30,556	90	19,680	915	20,595	90	9,961	90
Cuba	10,603.00	7,793.00	2,810.00	10,364	98	6,468	1,325	7,793	100	2,571	91
Dominican Rep.	7,450.00	4,470.00	2,980.00	4,540	61	2,150	1,200	3,350	75	1,190	40
Ecuador	9,997.00	5,621.00	4,376.00	6,376	64	4,173	252	4,425	79	1,951	45
El Salvador	5,047.39	2,537.09	2,510.30	2,801	55	2,297	109	2,406	95	395	16
Guatemala	9,744.63	3,731.79	6,012.84	6,202	64	2,799	336	3,135	84	3,067	51
Guyana	738.00	238.00	500.00	613	83	200	38	238	100	375	75
Haiti	6,831.00	2,129.00	4,702.00	2,746	40	341	830	1,171	55	1,575	34
Honduras	5,100.00	2,151.00	2,949.00	3,522	69	1,783	161	1,944	90	1,578	54
Jamaica	2,455.00	1,252.00	1,203.00	1,728	70	740	410	1,150	92	578	48
Mexico	86,200.00	61,500.00	24,700.00	71,900	83	42,400	13,200	55,600	90	16,300	66
Nicaragua	4,130.70	2,544.90	1,585.80	2,360	57	1,525	358	1,883	74	477	30
Paraguay	4,123.00	2,084.00	2,039.00	350	8	a/ 825	...	...	...	350	17
Peru	22,453.00	14,864.00	7,589.00	13,118	58	11,297	...	b/ 11,297	76	1,821	24
Suriname	395.00	296.00	99.00	284	72	2	229	231	78	53	54
Trinidad and Tobago	1,234.00	749.00	485.00	1,011	82	505	119	624	83	387	80
Uruguay	3,111.00	2,794.00	317.0	2,594	83	2,309	285	2,594	93	...	...
Venezuela	20,248.00	17,034.00	3,214.00	13,734	68	8,692	2,897	11,589	68	2,145	67
Total	434,329.62	312,080.36	122,249.26	347,894	80	243,774	34,794	278,568	89	69,326	57

a/ Not considered in the total
b/ Considered service with household connection

Table 5: Basic Sanitation
(Circa 1992)

Country	Population			Sewerage and excreta disposal							
	Total	Urban	Rural	Total Population Served		Urban Population				Rural Population	
				Population	%	Household Connection	Others	Total	%	Total	%
Argentina	31,074.00	26,219.00	4,855.00	27,640	89	10,261	15,958	26,219	100	1,421	29
Bahamas	264.00	218.50	45.50	259	98	22	192	214	98	45	100
Barbados	257.00	90.00	167.00	257	100	4	86	90	100	167	100
Belize	184.00	87.00	97.00	87	47	40	26	66	76	21	22
Bolivia	6,421.00	3,695.00	2,726.00	2,799	44	2,322	...	b/ 2,322	64	477	18
Brazil	149,085.00	116,285.0	32,800.00	108,300	73	46,700	50,000	96,700	83	11,600	35
Chile	13,232.00	10,814.00	2,418.00	10,954	83	9,261	1,553	10,814	100	140	6
Colombia	33,951.90	22,883.08	11,068.82	19,006	56	14,874	1,144	16,018	70	2,988	27
Cuba	10,603.00	7,793.00	2,810.00	9,709	92	3,047	4,746	7,793	100	1,916	68
Dominican Rep.	7,450.00	4,470.00	2,980.00	4,480	60	1,060	2,300	3,360	75	1,120	38
Ecuador	9,997.00	5,621.00	4,376.00	5,426	54	3,403	498	3,901	69	1,525	35
El Salvador	5,047.39	2,537.09	2,510.30	3,615	72	1,655	642	2,297	91	1,318	53
Guatemala	9,744.63	3,731.79	6,012.84	6,908	71	1,754	1,306	3,060	82	3,848	64
Guyana	738.00	238.00	500.00	358	49	69	139	208	87	150	30
Haiti	6,831.00	2,129.00	4,702.00	1,667	24	...	915	915	43	752	16
Honduras	5,100.00	2,151.00	2,949.00	3,276	64	1,065	890	1,955	91	1,321	45
Jamaica	2,455.00	1,252.00	1,203.00	1,825	74	230	880	1,110	89	715	59
Mexico	86,200.00	61,500.00	24,700.00	57,200	66	39,500	10,600	50,100	81	7,100	29
Nicaragua	4,130.70	2,544.90	1,585.80	...	...	a/ 761	...	...	...	...	...
Paraguay	4,123.00	2,084.00	2,039.00	1,223	30	a/ 530	...	...	...	1,223	60
Peru	22,453.00	14,864.00	7,589.00	10,208	45	8,918	...	b/ 8,918	60	1,290	17
Suriname	395.00	296.00	99.00	221	56	9	178	187	63	34	34
Trinidad and Tobago	1,234.00	749.00	485.00	691	56	165	284	449	60	242	50
Uruguay	3,111.00	2,794.00	317.0	2,562	82	1,336	1,226	2,562	92	-	-
Venezuela	20,248.00	17,034.00	3,214.00	11,227	55	5,590	3,727	9,317	55	1,910	59
Total	434,329.62	312,080.36	122,249.26	291,617	67	151,285	97,290	248,575	80	41,342	34

a/ Not considered in the total.
b/ Considered service with household connection.

Table 6: Maternal and Child Mortality, Perinatal Data

Countries and Subregions	Infant mortality rate*/			Maternal mortality rate**/		% Newborns weighing < 2500 g (1990)	Prevalence of contraceptive use among married women or women in consensual unions (Circa 1990)	% Prenatal care (Circa 1990)	% Births attended by trained personnel (Circa 1990)
	Estimated	Reported							
	(1990-1995)	Year	Rate	Year	Rate				
Andean Area									
Bolivia	75	1992	75	1988	247	12	30	38	29
Colombia	37	1989	38	1991	140	10	66	59	59
Ecuador	50	1992	37	1992	120	11	53	47	26
Peru	64	1989	88	1989	240	11	46	60	52
Venezuela	23	1988	23	1988	60	9	15	74	82
Southern Cone									
Argentina	24	1990	26	1990	52	8	...	96	95
Chile	16	1992	15	1990	41	7	18	91	99
Paraguay	38	1992	28	1990	270	8	48	60	60
Uruguay	20	1992	19	1991	38	8	85	95	100
Brazil	58	1992	54	1985	140	11	66	65	84
Central American Isthmus									
Belize	33	1992	41	1991	147	6	...	92	83
Costa Rica	14	1992	14	1992	40	6	86	91	94
El Salvador	46	1990	56	1991	140	11	61	69	66
Guatemala	48	1992	54	1992	220	14	23	34	23
Honduras	43	1992	45	1990	220	9	47	77	63
Nicaragua	52	1986	62	1992	150	15	27	87	42
Panama	25	1992	18	1989	60	10	58	82	85
Mexico	36	1990	24	1990	54	12	53	50	45
Latin Caribbean									
Cuba	12	1993	9	1992	32	8	70	100	100
Haiti	86	1990	87	1989	230	15	10	43	20
Puerto Rico	11	1990	13	1990	20	9	70	99	100
Dominican Republic	42	1991	65	1990	90	16	50	43	44
Non-Latin Caribbean									
Anguilla	...	1991	35	...	...	7	...	100	100
Antigua and Barbuda	...	1992	20	...	...	5	...	100	100
Netherland Antilles	19	1988	20	...	...	...	...	...	...
Aruba	...	1992	7	...	...	...	...	...	97
Bahamas	23	1991	20	1988	37	...	...	99	99
Barbados	9	1992	13	1992	20	8	...	100	100
Dominica	...	1992	18	...	...	...	...	90	100
Grenada	...	1992	29	...	...	9	...	100	100
Guadeloupe	12	1991	13	...	...	...	...	...	...
Guyana	48	1992	43	1990	180	18	31	95	93
French Guiana	...	1991	25	...	...	...	...	...	...
Cayman Islands	...	1992	8	1990	8	10	...	89	100
Turks and Caicos Islands	...	1992	25	...	...	...	...	...	...
Virgin Islands (USA)	...	1992	13	...	...	...	...	...	...
British Virgin Islands	...	1992	27	...	...	...	...	100	100
Jamaica	14	1992	15	1987	115	11	55	67	79
Martinique	8	1992	9	...	...	...	...	...	...
Montserrat	...	1992	12	...	...	...	...	100	100
Saint Kitts and Nevis	...	1992	34	...	...	12	...	100	100
St. Vincent and the Grenadines	...	1992	20	1990	6	...	...	100	100
Saint Lucia	...	1992	17	...	...	9	...	100	100
Suriname	28	1992	28	1987	31	...	...	91	90
Trinidad and Tobago	18	1989	15	1991	49	10	53	95	98
North America									
Bermuda	...	...	...	...	...	7	...	...	...
Canada	7	1991	6	1991	3	6	...	100	100
United States	9	1993	8	1993	8	9	74	98	99

*/ Rate per 1,000 live births
**/ Rate per 100,000 live births

Table 7: Coverage

Countries and Subregions	Vaccination coverage < 1 year (1993)			% Antitetanus Vaccination (1990-1991)	Use of ORT (1987-1992)	% Population with access to health services (1990)
	DPT	Polio	Measles			
Andean Area	79.5	82.4	79.1			
Bolivia	81.3	82.9	80.7	52	63	34
Colombia	83.0	85.3	93.6	40	40	75
Ecuador	76.3	79.0	72.9	19	70	61
Peru	84.2	86.3	75.0	20	31	44
Venezuela	68.7	74.5	63.2	50	80	76
Southern Cone	83.1	83.3	93.8			
Argentina	79.2	79.5	94.9	...	70	92
Chile	93.7	93.7	92.5	...	10	93
Paraguay	78.9	79.9	96.2	54	52	54
Uruguay	88.0	88.0	80.0	84	96	96
Brazil	68.5	92.3	77.7	62	63	72
Central American Isthmus	81.2	84.3	80.3			
Belize	88.0	89.0	83.0	...	33	86
Costa Rica	86.0	86.7	81.5	5	78	96
El Salvador	79.2	79.2	86.4	26	45	59
Guatemala	75.7	77.0	68.4	18	24	50
Honduras	94.0	95.0	94.0	30	70	46
Nicaragua	77.8	93.8	83.4	12	40	69
Panama	81.4	82.7	82.4	24	55	79
Mexico	91.0	91.7	91.3	42	63	77
Latin Caribbean	58.6	66.4	77.2			
Cuba	99.9	97.1	96.3	98	80	99
Haiti	30.0	30.0	24.0	5	20	...
Puerto Rico	...	...	...	...	...	...
Dominican Rep.	57.1	82.2	99.9	87	35	71
Non-Latin Caribbean	89.1	89.7	84.1			
Anguilla	99.9	99.9	99.9	...	...	...
Antigua and Barbuda	99.9	99.9	99.9	...	...	88
Netherland Antilles	...	...	...	...	...	...
Aruba	...	...	...	...	...	...
Bahamas	91.3	91.3	87.9	80	...	98
Barbados	88.8	88.4	92.0	...	...	97
Dominica	98.9	98.9	99.9	...	...	91
Grenada	88.5	90.8	99.9	...	...	86
Guadeloupe	...	...	...	...	...	...
Guyana	92.9	92.1	90.4	...	...	84
French Guiana	...	...	...	...	...	...
Cayman Islands	98.3	98.3	89.5	...	...	...
Turks and Caicos Islands	99.9	99.9	97.1	...	...	...
Virgin Islands (USA)	...	...	...	...	...	...
British Virgin Islands	98.4	99.0	99.9	...	...	...
Jamaica	90.9	93.2	80.0	50	10	89
Martinique	...	...	...	...	...	...
Montserrat	...	...	...	...	...	...
Saint Kitts and Nevis	99.9	99.9	98.8	...	...	...
St. Vincent and the Grenadines	99.7	99.9	98.9	...	...	...
Saint Lucia	96.9	96.8	94.2	...	...	...
Suriname	76.1	75.7	60.5	...	...	88
Trinidad and Tobago	80.7	78.3	87.0	19	70	97
North America	...	...	...			
Bermuda	65.0	65.0	73.9	...	...	...
Canada	...	...	...	...	...	99
United States	83.0+	72.0+	82.0+	...	...	99

+ Population 19-35 months of age.

Table 8: Human Resource

Countries and subregions	Physicians per 10,000 inhabitants (Circa 1990)	Nurses per 10,000 inhabitants (Circa 1990)	Nursing auxiliaries per 10,000 inhabitants (Circa 1990)	Dentists per 10,000 inhabitants (Circa 1990)
Andean Area				
Bolivia	4.5	2.5	6.3	2.18
Colombia	10.9	4.6	9.3	4.13
Ecuador	14.2	5.0	10.6	4.38
Peru	10.6	8.7	17.3	3.18
Venezuela	16.2	7.4	19.9	3.94
Southern Cone				
Argentina	26.8	5.4	15.4	6.62
Chile	11.0	4.2	21.2	3.82
Paraguay	6.5	3.0	7.2	2.57
Uruguay	36.8	5.5	4.8	11.22
Brazil	13.6	3.7	29.2	7.70
Central American Isthmus				
Belize	6.2	5.5	7.3	0.65
Costa Rica	12.6	9.5	12.5	3.76
El Salvador	8.4	4.9	4.5	2.19
Guatemala	7.8	3.2	11.6	1.10
Honduras	7.0	2.5	9.0	1.14
Nicaragua	4.4	5.6	6.5	1.24
Panama	16.4	10.5	13.3	3.81
Mexico	17.0	9.2	7.0	7.11
Latin Caribbean				
Cuba	43.3	68.0	0.3	7.45
Haiti	0.8	1.0	2.6	0.12
Puerto Rico	...	...	...	...
Dominican Republic	14.9	1.8	6.3	2.54
Non-Latin Caribbean				
Anguilla	11.1	22.2	21.1	1.11
Antigua and Barbuda	7.6	23.3	24.4	1.69
Netherland Antilles	...	...	...	...
Aruba	...	...	...	...
Bahamas	14.1	25.8	37.9	2.20
Barbados	11.3	32.3	19.4	1.27
Dominica	4.6	26.3	...	0.05
Grenada	5.0	23.9	12.9	0.74
Guadeloupe	11.5	24.9	...	2.55
Guyana	1.7	8.8	...	0.14
French Guiana	11.8	73.2	...	2.55
Cayman Islands	17.0	51.8	8.1	4.07
Turks and Caicos Islands	5.3	17.7	9.4	0.59
Virgin Islands (USA)	...	...	...	...
British Virgin Islands	16.5	36.9	20.8	0.77
Jamaica	5.7	6.9	3.7	0.89
Martinique	17.1	46.1	37.8	3.29
Montserrat	5.0	38.0	18.0	1.00
Saint Kitts and Nevis	8.9	59.0	5.5	1.82
St .Vincent and the Grenadines	4.6	18.7	12.0	0.50
Saint Lucia	3.5	17.7	10.1	0.57
Suriname	7.5	22.7	8.7	0.50
Trinidad and Tobago	7.2	16.1	11.4	0.86
North America				
Bermuda	12.0	88.6	...	4.58
Canada	22.1	95.8	31.3	5.34
United States	24.5	87.8	54.9	6.26

f) 1984
g) 1986

Table 9: Health Expenditure

Countries and subregions	National health expenditure per capita (1988 US$) (Circa 1990)	Public health expenditure as a % of GDP (Circa 1990)	Public health expenditure of central government as % of total central government expenditure (Circa 1990)	Total health expenditure as a % of GDP (Circa 1990)
Andean Area				
Bolivia	39.0	1.4	3.29	4.5
Colombia	82.2	2.8	4.16b/	5.7
Ecuador	78.6	2.5	11.04	6.3
Peru	41.3	1.0	5.06	3.1
Venezuela	220.3	1.7	11.02b/	6.5
Southern Cone				
Argentina	337.2	5.3	3.1	9.0
Chile	155.5	3.6	5.85	6.2
Paraguay	49.2	0.4	4.32	3.2
Uruguay	158.1	2.9	4.49	5.7
Brazil	128.8	2.1	6.70	5.8
Central American Isthmus				
Belize	99.7	2.7	6.84	5.0
Costa Rica	155.8	6.9	31.99	9.2
El Salvador	52.8	1.3	7.71	5.0
Guatemala	29.9	1.7	9.90	3.3
Honduras	44.0	3.0	...	5.8
Nicaragua	26.9	3.7	...	5.0
Panama	172.5	5.4	20.54	8.7
Mexico	85.8	1.4	1.91	3.8
Latin Caribbean	...	...	...	...
Cuba	8.8	1.3	...	3.4
Haiti	...	...	14.03	...
Puerto Rico	32.4	1.5		4.8
Dominican Republic				
Non-Latin Caribbean				
Anguilla	...	3.9	...	...
Antigua y Barbuda	344.0	...	...	5.9
Netherland Antilles	...	...	6.03	...
Aruba	...	...	...	...
Bahamas	566.6	2.8	4.95	5.0
Barbados	347.7	3.8	11.93	5.8
Dominica	133.0	4.3	13.67a/	6.2
Grenada	114.8	3.7	12.73b/	5.6
Guadeloupe	...	...	...	...
Guyana	29.2	4.2	6.67a/	5.9
French Guiana	...	...	...	...
Cayman Islands	1,166.8	2.7	13.96	4.7
Turks y Caicos Islands	...	...	...	...
Virgin (USA)	...	...	...	...
British Virgin Islands	...	...	...	...
Jamaica	54.3	2.3	6.30b/	3.7
Martinique	...	...	...	...
Montserrat	337.7	3.8	15.86b/	5.8
Saint Kitts and Nevis	213.9	4.4	12.36	6.3
St. Vincent & the Grenadines	124.8	4.3	15.12	6.1
Saint Lucia	116.6	3.5	11.56b/	5.0
Suriname	133.3	1.9	3.71b/	4.1
Trinidad and Tobago	181.2	3.1	...	4.4
North America				
Bermuda	...	...	3.85	...
Canada	1,495.0	...	...	9.1
United States	2,763.0	...	...	12.7

a/ 1984
b/ 1986

Table 10: Hospital Beds

Countries and subregions	No. Beds (Circa 1991)	Discharges per 100 inhabitants (Circa 1991)	Turnover (Circa 1991)	Average days of hospitalization (Circa 1991)	Percentage occupancy (1991)	Beds per 1,000 inhabitants	
						1978	1991
Andean Area							
Bolivia	9,873	2.3	31.7	5.3	45.9	1.8	1.3
Colombia	45,841	6.1	40.7	5.8	57.2	1.7	1.4
Ecuador	1,324	5.0	31.0	6.2	53.0	2.0	1.6
Peru	32,941	2.8	18.9	6.5	33.8	1.9	1.5
Venezuela	52,681	6.1	45.7	5.6	69.7	2.7	2.6
Southern Cone							
Argentina	147,000	5.2	22.7	8.4	51.9	5.4	4.4
Chile	42,895	10.4	32.4	7.3	64.9	3.6	3.2
Paraguay	5,163	3.5	29.9	3.3	45.9	1.5	1.2
Uruguay	13,812	4.0	23.5	9.3	59.5	5.2	4.4
Brazil	522,895	...	34.7	6.9	...	3.8	3.5
Central American Isthmus							
Belize	388	...	...	...	...	3.2	2.2
Costa Rica	6,734	9.7	45.4	6.1	78.2	3.1	2.2
El Salvador	8,585	...	29.0	6.0	54.9	1.8	1.6
Guatemala	14,040	...	...	...	...	1.6	1.6
Honduras	6,061	4.6	41.5	...	...	1.3	1.1
Nicaragua	4,720	5.5	46.1	4.9	63.1	1.6	1.2
Panama	6,758	8.9	32.5	7.3	65.1	3.9	2.7
Mexico	67,703	4.1	51.7	...	...	0.9	0.8
Latin Caribbean							
Cuba	64,347	13.5	22.7	...	...	4.0	6.0
Haiti	5,192	...	...	...	...	0.8	0.8
Puerto Rico	10,421	12.4	49.5	...	63.9	2.95	...
Dominican Republic	14,531	4.6	39.7	...	...	2.0	1.9
Non-Latin Caribbean							
Anguilla	24	11.7	43.8	3.1	44.0	...	2.7
Antigua and Barbuda	...	...	...	...	...	6.3	...
Netherland Antilles	1,436	15.0	33.3	10.5	88.5	...	7.6
Aruba	...	...	...	...	...	...	...
Bahamas	1,033	8.2	39.6	7.7	83.7	4.3	4.0
Barbados	2,108	7.7	34.8	7.7	73.7	8.7	8.1
Dominica	241	10.3	37.9	5.9	88.5	3.0	3.3
Grenada	598	9.2	13.9	8.4	45.6	8.6	6.6
Guadeloupe	...	...	...	...	...	...	...
Guyana	...	...	...	...	...	...	...
French Guiana	...	...	...	...	...	4.5	...
Cayman Islands	69	14.2	...	...	...	...	2.6
Turks and Caicos Islands	36	7.9	26.9	...	...	...	2.9
Virgin Islands (USA)	...	...	...	...	...	...	...
British Virgin Islands	58	7.6	24.2	6.2	47.4	3.5	3.5
Jamaica	5,390	5.6	27.0	6.0	71.8	2.4	2.2
Martinique	...	...	...	...	...	...	...
Montserrat	50	12.4	33.2	4.3	35.8	5.1	4.8
Saint Kitts and Nevis	276	10.4	20.6	8.7	49.3	5.6	6.6
St. Vincent and the Grenadines	477	7.8	40.7	6.0	67.9	5.1	4.4
Saint Lucia	505	9.0	41.4	5.1	57.7	4.4	3.7
Suriname	1,323	7.3	25.4	9.9	68.8	5.8	3.2
Trinidad and Tobago	4,123	10.9	59.5	4.3	70.7	4.1	3.3
North America							
Bermuda	...	...	...	...	...	...	...
Canada	...	...	...	...	...	...	...
United States	...	...	...	...	...	...	...

Table 11: Demographic Data

Countries and subregions	Total population (1995) (thousands)	Population < 5 years (1995) (thousands)	Population 5-14 years (1995) (thousands)	Populations 15-44 years (1995) (thousands)	Population 45-64 years (1995) (thousands)	Population 65 years and over (1995) (thousands)	Total fertility rate 1990-1995
Andean Area	100,337	12,178	22,895	48,613	12,428	4,223	3.22
Bolivia	8,074	1,178	2,029	3,593	959	315	4.56
Colombia	35,101	3,875	7,685	17,631	4,345	1,565	2.67
Ecuador	11,822	1,549	2,837	5,596	1,369	471	3.62
Peru	23,854	3,010	5,451	11,384	3,028	981	3.57
Venezuela	21,483	2,566	4,894	10,408	2,728	887	3.12
Southern Cone	56,582	5,765	10,999	25,433	9,625	4,760	2.86
Argentina	34,264	3,272	6,434	15,007	6,264	3,287	2.79
Chile	14,237	1,514	2,824	6,778	2,214	907	2.66
Paraguay	4,893	716	1,224	2,268	509	176	4.34
Uruguay	3,186	262	515	1,379	639	391	2.33
Brazil	161,384	16,894	34,993	78,750	22,401	8,346	2.75
Central American Isthmus	32,871	5,101	8,647	14,455	3,429	1,239	4.52
Belize	209	...	...	...	...	...	4.53
Costa Rica	3,424	420	778	1,636	430	160	3.14
El Salvador	5,768	857	1,489	2,553	631	238	4.04
Guatemala	10,621	1,788	2,920	4,495	1,049	369	5.36
Honduras	5,968	960	1,620	2,617	573	202	4.94
Nicaragua	4,433	769	1,267	1,863	396	138	5.04
Panama	2,659	309	573	1,292	350	135	2.87
Mexico	93,669	11,912	21,829	45,206	10,952	3,771	3.16
Latin Caribbean	29,874	3,335	5,967	14,157	4,511	1,904	2.93
Cuba	11,091	930	1,645	5,431	2,091	992	1.87
Haiti	7,180	1,083	1,806	3,177	833	281	4.79
Puerto Rico	3,691	326	644	1,742	654	325	2.16
Dominican Republic	7,915	997	1,873	3,804	935	304	3.34
Non-Latin Caribbean	6,479	673	1,312	3,239	846	409	2.47
Anguilla	8a/	1,9	1	4	1	1	3.11
Antigua and Barbuda	59b/	...	...	...	...	...	1.71
Netherland Antilles	176	...	...	...	...	...	1.94
Aruba	62	...	...	...	...	...	1.74
Bahamas	277	25	50	147	40	15	2.01
Barbados	261	20	41	130	39	31	1.80
Dominica	71	...	...	...	...	...	2.55
Grenada	94b/	12	24	39	11	8	4.59
Guadeloupe	414	38	68	204	69	35	2.16
Guyana	834c/	94	175	436	96	33	2.55
French Guiana	114	...	...	...	...	...	3.68
Cayman Islands	33	...	...	...	...	...	1.45
Turks and Caicos Islands	12c/	...	2	8	0,7	0,5	3.85
Virgin Islands (USA)	108	...	...	...	...	...	2.77
British Virgin Islands	16b/	1	3	9	2	1	2.16
Jamaica	2,547	266	522	1,295	300	164	2.38
Martinique	377	35	60	182	67	39	1.99
Montserrat	11b/	0,8	2	5	1,5	1,5	2.18
Saint Kitts and Nevis	41	...	...	...	...	...	2.59
St. Vincent and the Grenadines	106b/	12	27	48	12	7	2.83
Saint Lucia	135b/	16	34	62	15	8	3.41
Suriname	463	55	103	230	54	21	2.68
Trinidad and Tobago	1,305	144	296	614	177	74	2.74
North America	291,675	22,330	41,211	132,874	58,645	36,615	2.04
Bermuda	63	...	...	...	...	...	1.73
Canada	28,537	1,986	3,923	13,196	5,996	3,436	1.78
United States	263,138	20,344	37,288	119,679	52,649	33,178	2.07

a/ 1992 Census
b/ 1991 Census

Table 12: Demographic Data

Countries and Subregions	Life expectancy at birth (1990-1995)		Crude birth rate (1990-1995)	Crude death rate (1990-1995)	Annual rate of population growth (1990-1995)	% Urban population (1995)	Cities with a million or more inhabitants (1990)	
	M	F					Number	Population (thousands)
Andean Area	64.2	69.4	27.1	6.6		74.0	11	24,727
Bolivia	58.9	63.5	34.4	9.4	2.37	54.4	1	1,010
Colombia	66.4	72.3	24.0	6.0	1.66	72.7	4	9,010
Ecuador	64.5	68.8	29.7	6.9	2.28	60.6	2	3,084
Peru	62.7	66.5	29.0	7.6	2.03	72.2	1	6,475
Venezuela	67.3	73.5	26.1	5.3	2.12	92.2	3	5,148
Southern Cone	67.8	74.5	21.7	8.0		84.0	5	19,885
Argentina	68.1	74.8	20.3	8.6	1.17	87.4	3	13,728
Chile	68.5	75.6	22.5	6.4	1.55	85.9	1	4,870
Paraguay	65.1	69.5	33.0	6.4	2.69	50.7	-	-
Uruguay	69.3	75.7	17.1	10.3	0.58	90.3	1	1,287
Brazil	63.5	69.1	23.3	7.4	1.59	78.7	14	55,015
Central American Isthmus	65.6	70.1	35.2	6.7	2.24	68.3	-	-
Belize	67.0	72.0	38.0	5.0	2.03	52.5	-	-
Costa Rica	74.0	78.6	26.3	3.7	2.41	49.7	-	-
El Salvador	63.9	68.8	33.5	7.1	2.18	46.7	-	-
Guatemala	62.4	67.3	38.7	7.7	2.88	41.5	-	-
Honduras	63.7	68.0	37.1	7.2	3.00	47.7	-	-
Nicaragua	64.8	68.5	40.5	6.8	1.89	62.9	-	-
Panama	70.8	74.9	24.9	5.2	1.90	54.9	-	-
Mexico	67.1	73.6	27.9	5.5	2.06	75.3	6	24,002
Latin Caribbean	66.8	70.9	24.6	7.8		62.4	4	6,751
Cuba	73.9	77.6	17.4	6.7	0.89	75.0	1	2,124
Haiti	54.9	58.3	35.3	11.9	2.03	31.6	1	1,041
Puerto Rico	71.7	78.2	18.4	6.9	0.89	76.6	1	1,383
Dominican Republic	65.4	69.8	28.3	6.2	1.98	64.6	1	2,203
Non-Latin Caribbean	69.7	74.9	22.4	6.6		61.7	-	-
Anguilla	71.0	77.0	24.0	9.0	1.32	...	-	-
Antigua and Barbuda	70.0	74.0	18.0	6.0	0.71	34.6	-	-
Netherland Antilles	73.0	77.0	18.0	5.0	...	...	-	-
Aruba	72.0	80.0	15.0	6.0	0.25	69.5	-	-
Bahamas	68.8	75.9	19.3	5.2	1.60	66.6	-	-
Barbados	72.9	77.9	15.8	9.1	0.33	47.7	-	-
Dominica	73.0	79.0	26.0	5.0	-0.19	...	-	-
Grenada	69.0	74.0	35.0	7.0	0.31	...	-	-
Guadeloupe	71.1	78.0	19.0	6.8	1.22	51.3	-	-
Guyana	62.4	68.0	25.1	7.1	0.94	35.3	-	-
French Guiana	69.0	76.0	28.0	7.0	3.04	76.5	-	-
Cayman Islands	75.0	79.0	13.0	5.0	4.20	100.0	-	-
Turks and Caicos Islands	73.0	77.0	25.0	6.0	3.85	54.7	-	-
Virgin Islands (USA)	74.0	77.0	22.0	5.0	0.15	49.2	-	-
British Virgin Islands	...	...	19.0	5.0	...	...	-	-
Jamaica	71.4	75.8	22.0	6.2	1.02	55.4	-	-
Martinique	72.9	79.4	17.4	7.1	0.92	78.0	-	-
Montserrat	74.0	78.0	16.0	10.0	-0.34	13.8	-	-
Saint Kitts and Nevis	64.0	71.0	24.0	10.0	-0.30	52.6	-	-
St. Vincent and the Grenadines	68.0	72.0	27.0	6.0	0.88	22.2	-	-
Saint Lucia	69.0	74.0	31.0	5.0	1.35	46.2	-	-
Suriname	67.8	72.8	25.6	5.6	1.86	50.4	-	-
Trinidad and Tobago	68.9	73.9	23.3	6.2	1.08	66.6	-	-
North America	72.8	79.4	15.7	8.8		100.0	36	102,478
Bermuda	69.0	76.0	15.0	7.0	0.71	78.1	-	-
Canada	74.2	80.7	14.2	7.7	1.8	76.2	3	7,892
United States	72.6	79.3	15.9	8.9	1.03		33	94,586

Table 13: Socioeconomic Data

Countries and Subregions	% Literacy		GDP per capita (PPP) (US$) (1992)	Consumer price		GDP growth rate (1991-1993)	External debt as a % of GDP (1992)
	M	F		1991	1993		
Andean Area							
Bolivia	86	72	680	14.6	9.2	10.9	61.2
Colombia	88	86	1,330	26.8	21.2	10.3	36.9
Ecuador	89	85	1,070	49.0	32.2	10.0	99.9
Peru	93	80	950	139.2	41.3	5.8	92.7
Venezuela	88	91	2,910	31.0	44.1	16.6	61.1
Southern Cone							
Argentina	97	96	6,050	84.0	7.7	25.4	30.3
Chile	95	94	2,730	25.4	12.2	23.6	48.9
Paraguay	93	89	1,380	11.8	19.5	8.0	24.6
Uruguay	98	97	3,340	81.5	52.3	12.7	46.7
Brazil	84	81	2,770	475.1	2244.0	4.6	31.2
Central American Isthmus							
Belize	91	91	...	...	...	14.8	...
Costa Rica	93	93	1,960	25.4	9.2	15.7	58.7
El Salvador	80	70	1,170	9.8	13.5	13.6	25.5
Guatemala	65	48	980	10.0	12.8	12.8	24.2
Honduras	78	73	580	24.5	13.4	11.8	92.0
Nicaragua	72	71	340	775.4	28.3	-0.3	750.3
Panama	90	90	2,420	2.4	1.6	24.3	107.2
Mexico	91	86	3,470	18.9	8.7	7.2	34.1
Latin Caribbean							
Cuba	96	94	...	...	...	...	...
Haiti	61	49	...	6.6	60.0	-19.7	...
Puerto Rico	90	89	6,590	...	...	...	...
Dominican Republic	86	83	1,050	3.9	3.3	7.7	57.0
Non-Latin Caribbean							
Anguilla	95	95	...	...	...	...	...
Antigua and Barbuda	90	88	...	...	...	3.3	...
Netherland Antilles	94	93	...	...	...	...	...
Aruba	...	...	...	...	...	...	...
Bahamas	90	89	...	...	...	...	...
Barbados	99	99	...	8.1	0.3	...	...
Dominica	94	94	...	...	...	6.6	...
Grenada	98	98	...	...	...	3.5	...
Guadeloupe	89	90	...	...	...	...	...
Guyana	99	96	...	...	...	...	...
French Guiana	84	82	...	...	...	...	...
Cayman Islands	98	98	...	...	...	...	...
Turks and Caicos Islands	99	98	...	...	...	...	...
Virgin Islands (USA)	...	...	...	...	...	...	...
British Virgin Islands	98	99	...	...	...	...	...
Jamaica	99	99	1,340	76.7	24.8	...	131.7
Martinique	92	93	...	...	...	...	...
Montserrat	97	97	...	...	...	...	...
Saint Kitts and Nevis	98	98	...	...	...	7.4	...
St. Vincent and the Grenadines	96	96	...	...	...	9.5	...
Saint Lucia	81	82	...	...	...	8.3	...
Suriname	96	96	...	...	...	...	...
Trinidad and Tobago	99	98	3,940	2.3	11.5	...	45.7
North America							
Bermuda	98	99	...	...	...	...	...
Canada	99a/	99a/	20,710	...	...	...	...
United States	99a/	99a/	23,240	...	...	...	...

a/ For both sexes

Table 14: Major Natural Disasters in the Region of the Americas, 1989-1993

Country	Month/year	Event	Deaths	Estimated population affected*/
Argentina	August 1991	Volcanic eruption	-	62,000
	May 1992	Floods	-	100,000
Bahamas	August 1992	Hurricane	-	1,700
Bolivia	1990	Drought	-	283,000
	February 1992	Floods		40,000
Brazil	May 1989	Landslides/floods	69	78,000
	July 1989	Floods	49	52,000
	Dec/1989	Floods	35	200,000
	May 1992	Floods	29	125,000
Chile	June 1991	Landslides/floods	145	656,000
Colombia	October 1992	Earthquake	10	23,000
Costa Rica	Dec/1990	Earthquake	1	14,000
	Abril 1991	Earthquake	47	7500
	Agosto 1991	Floods	1	165,00
Cuba	May 1990	Floods	-	6,000
	February 1992	Floods	-	9,000
	May 1992	Earthquake	-	7,000
	March 1993	Floods	5	150,000
Ecuador	June 1989	Floods	35	30,000
	March 1992	Floods	22	125,000
	March 1993	Floods	50	20,000
El Salvador	Sept/1992	Floods	2	8,000
Guatemala	Sept/1991	Earthquake	17	20,000
Honduras	Nov/1990	Floods	15	85,000
Jamaica	May 1991	Floods	-	550,000
Mexico	Sept/1990	Floods	45	17,800
Montserrat	August 1989	Hurricane	-	10,000
Nicaragua	May 1990	Floods	4	106,500
	April 1992	Volcanic eruption	-	300,000
	Sept/1992	Tidal wave	116	40,500
Panama	April 1991	Earthquake	23	5,000
	August 1991	Floods	2	20,000
Paraguay	January 1990	Floods	-	15,000
	May 1992	Floods	-	65,500
Peru	May 1990	Earthquake	100	10,000
	August 1990	Drought	-	2,200,000
	April 1991	Earthquake	53	50,000
	July 1991	Earthquake	11	1,500
	March 1992	Floods	-	30,000
	July 1992	Drought	-	1,100,000
United States	October 1989	Earthquake	60	**/ 12,000
	August 1992	Hurricane	40	**/ 160,000
	April-August 1993	Floods	50	**/ 74,000
	November 1992	Floods	1	**/ 25,000

*/ Includes the number of dead, injured, temporarily or permanently displaced persons in need of food assistance, and economic losses resulting from a natural disaster

**/Homeless

SOURCES

Table 1: **Mortality by Cause**

Age-adjusted mortality rates were calculated using:

- The PAHO Technical Information System and *Health Statistics from the Americas*, 1992 Edition, PAHO.

Table 2: **Morbidity**

Morbidity data for the various diseases were obtained from the databases of the following PAHO programs and units:

- Measles: Expanded Program on Immunization;
- Malaria: Communicable Diseases;
- AIDS: AIDS and Sexually Transmitted Diseases;
- Cholera: Control of Diarrheal Diseases.

Table 3: **Food and Nutrition**

Low weight 0-4 years:

- *The State of the World's Children*. UNICEF, 1994.

Per capita daily availability of calories as a percentage of the requirement and food dependence:

- *Human Development Report, 1994*. UNDP.

Availability of proteins:

- *Statistical Yearbook. 38th Issue*. United Nations, 1993.

Index of food production:

- *World Resources, 1994-1995. A guide to the global environment.* World Resources Institute. In collaboration with UNDP/UNEP.

Tables 4-5: **Drinking Water Supply and Basic Sanitation**

Data were taken from:

- Database of the Basic Sanitation Program, PAHO.

Table 6: **Maternal and Child Health**

Infant Mortality and Maternal Mortality Rates:

- Country surveillance reports on the strategies of Health for All in the Year 2000.

- Country reports for *Health Conditions in the Americas*, 1994. PAHO.

Percentage of newborns weighing under 2,500 g:

- Country surveillance reports on the strategies of Health for All in the Year 2000. *The State of the World's Children*, 1994. UNICEF.

Prevalence of contraceptive use:

- Database of the Growth, Development, and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO.

Percentage of prenatal care and percentage of births attended by trained personnel:

- Country surveillance reports on the strategies of Health for All by the Year 2000.

- Country reports for *Health Conditions in the Americas, 1994*, PAHO.

Table 7: **Coverage**

Vaccination coverage in children less than one year of age:

- Database of the Expanded Program on Immunization, PAHO.

Percentage of antitetanus vaccination:

- Database of the Growth, Development, and Human Reproduction Unit of the Special Program on Maternal and Child Health and Population, PAHO.

Percentage of the population with access to health services:

- Indicator constructed by the Health Situation Analysis Unit, PAHO.

Table 8: **Human Resources**

The Human Resources indicators were obtained from:

- The database of the Human Resources Development Program, PAHO.

Table 9: **Health Expenditure**

National health expenditure per capita, public health expenditure, and total health expenditure as a percentage of GDP were taken from:

- The database of the Health Policies Unit, PAHO.

Table 10: **Hospital Beds**

The indicators for hospital beds were obtained from:

- The database of the Division of Health Systems and Services, PAHO.

Table 11-12: **Demographic Data**

Population indicators were taken from:

- *The Sex and Age Distribution of the World Population. The 1992 Revision,* United Nations, and the supplementary tables of *World Population Prospects. The 1992 Revision,* United Nations.

The total fertility rate, life expectancy at birth, Crude birth rate, crude death rate, and annual population growth rate, from:

- *World Population Prospects. The 1992 Revision,* United Nations.

Percentage of urban population and Cities with a million or more inhabitants:

- *World Urbanization Prospects, 1992,* United Nations.

Table 13: **Socioeconomic Data**

Percentage of literacy:

- *Human Development Report*, UNDP, 1994.

GDP per capita and External debt as a percentage of GDP:

- *World Development Report*, 1994. World Bank.

Consumer price index and GDP growth rate:

- *Preliminary Overview of the Economy of Latin America and the Caribbean*, 1993.

Table 14: **Principal natural disasters of the Region of the Americas**

Data obtained from:

- The database of the Program on Emergency Preparedness and Disaster Relief, PAHO.