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WORKERS' HEALTH

In 1948 the Constitution of the World Health Organization declared that enjoyment of the highest degree of health is one of the basic rights of all mankind. In this context, on several occasions the World Health Assembly has issued mandates on occupational health related to the goals of Health for all by the Year 2000 and the primary health care strategy. Also at the regional level, one of the objectives of the "Plan of Action for the Implementation of Regional Strategies - Health for All" is to expand occupational health services, and it identifies a set of approaches and programming guidelines for this purpose. The International Labour Organization (ILO) has prepared and approved numerous instruments on workers' health. Worthy of special mention among these are Recommendation 171 and Convention 161 on occupational health services in the workplace, which reconfirm the priority that should be given to promotion and preventive measures related to workers' health.

Since health is a basic human right of all workers, their right to unemployment, health, and disability insurance is also recognized. The good health and well-being of workers has a direct impact on their productivity and on national output, which is indispensable for the socioeconomic development of the countries. Contrariwise, workers' disability, diseases, and accidents, as well as fatigue, are factors causing high economic costs which society must always absorb, and in times of crisis they put a substantial restraint on progress. When workers become ill, they become slaves to curative medical care, which is often costly, and this causes suffering. Occupational health in its essential aspects, namely promotional and preventive, helps to reduce suffering, the cost of medical care, and compensation for disability.

The present document analyzes the occupational health situation in the countries of the Region, mainly the developing countries, in the light of the health problems, risks, and trends that affect workers, the progress of national programs, the organizational systems currently in place, restrictive aspects, and other key factors that have a far-reaching effect on workers getting the care they should have. Also presented are current approaches to eliciting greater concern and action on the part of authorities, employers, the workers themselves, and the community. All these issues are presented to give the Governing Bodies of PAHO an opportunity to review this important component of health and to determine the factors that will focus progressive attention on the problem and in this way contribute to workers' health and health in general as part of the economic and social development to which our countries are committed.

CONTENTS

TABLES

WORKERS' HEALTH

1. CONCEPTUAL ASPECTS

1.1 Relationship between Work and Health

The conceptual frame of reference for the present document begins with an analysis of the interaction between work and health.

- Health is understood in the sense of its WHO definition, namely as: "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

- Work is considered here to be any and all human activity in which people seek to satisfy their own needs and those of society and which differentiates them from other species.

1.2 Occupational Health

The definition, as established by the Joint ILO/WHO Committee on Occupational Health at its 1950 meeting, is as follows: "Occupational health should aim at: the promotion and maintenance of the highest degree of physical, mental, and social well-being of workers in all occupations; the prevention among workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological equipment, and, to summarize: the adaptation of work to man and of each man to his job." Occupational health is concerned with the favorable and unfavorable effects that work can have on health and also with the effects that people's health, or the interference therewith, can have on their ability to work.

1.3 Target Population

The target population for occupational health care, which represents at least 35% of a nation's inhabitants, consists of all workers regardless of their activity, occupation or profession, workplace, urban or rural location, age, sex, or type of contractual association. The labor force consists of the economically active population, that is, adults of both sexes, including women of child-bearing age, persons of advanced age, and the ill, as well as youth and some minors. They may perform paid work (wage-earners, independent workers, and temporaries), unpaid work, or work that does not produce economic gain (such as domestic or charitable work), and they may have a fixed, permanent, or changing workplace (factory, office, health institution, construction site, mine, farm, business, fishery,

transportation system, etc.). It also includes workers in establishments of any size, large, medium, or small, including family or sole-proprietor businesses, and workers who may or may not be organized into trade unions or cooperative groups.

1.4 Occupational Accidents, Occupational Diseases, and Work-Related Diseases and Injuries

a) Occupational Accidents: Various definitions of occupational accidents are used in the countries. In scientific terms, and for purposes of prevention, an occupational accident is understood to be a specific break in the necessary adjustment between workers and their working conditions. It is an unplanned event that occurs in the complex relationship between individuals and their productive environment which causes a deterioration in that relationship. It involves physical harm and suffering for the worker as well as harm to the production process (loss of time, deterioration of materials and machinery) (1). Occupational accidents are by nature multifactorial and multicausal (2).

b) Occupational Diseases: Occupational diseases may be described in terms of preventive measures or in medical and legal terms. From the preventive standpoint, an occupational disease is considered to be any pathological condition due to the specific effect of working conditions and environment. It has direct effects on the individual exposed, causing death, reversible or irreversible changes, or disability, and sometimes it has repercussions on the worker's descendants. From the juridical standpoint, an occupational disease is understood to be a pathological state, either physical or mental, that can befall a worker due to the repeated or habitual performance of a specific job activity or to the steady effect of occupational risk factors when a cause-and-effect relationship is demonstrated.

c) Work-Related Diseases and Injuries: A WHO Expert Committee recommended that, in addition to the recognized occupational diseases, the term "work-related disease" be introduced for pathological situations in which the work environment and work performance have a significant influence (3). When there is a causal relationship between exposure on the job to risk factors, recognized as capable of potentiating, triggering, accelerating, or aggravating, and a "common" disease or injury that affects the worker, such disease or injury is normally considered to be work-related from both the medical and prevention standpoint.

d) Work-Related Discomfort and Malaise: It must be stressed that exposure to small doses of harmful substances or the performance of activities under unsatisfactory conditions without reaching diagnosable pathogenic conditions will lead to malaise, as in the case of behavioral disturbances caused by toxic materials or early onset of fatigue due to exposure to heat or other stresses. Such situations contribute to a lower quality of life, increased conflicts, and diminished capacity--personal, productive, and preventive--which can develop from malaise and discomfort into pathological conditions.

1.5 Work-Related Risk Factors

Risk factors are the attributes or exposures that increase the probability of accidents, illness, or other undesirable consequences. To identify, quantify, and control these work-related risk factors, including ergonomic and psychosocial factors, it is necessary to use epidemiological techniques which, in the case of occupational health, make it possible not only to understand pathological situations but also to monitor risk factors and serve as a basis for occupational hygiene and primary preventive measures.

1.6 Concept of Comprehensive Health Care for Workers

This concept includes a series of activities in the areas of health information and education, health promotion and maintenance, and technical and medical preventive measures coordinated with curative medical care, rehabilitation, and readaptation, and supplemented by a system of financial compensation to workers who are disabled or who have completed the number of active years specified by law in order to retire. In order to reduce the frequency and seriousness of pathological conditions and disabilities in the older age group, people must have access to health care throughout life, including the prenatal period, the first and second childhood, and during adolescence as they prepare for work and their productive years.

1.7 Occupational Health Services

Article 1 of ILO Convention 161, issued in 1985, states that "the term occupational health services means services entrusted with essentially preventive functions and responsible for advising the employer, the workers, and their representatives in the undertaking on:

i) The requirements for establishing and maintaining a safe and healthy working environment which will facilitate optimal physical and mental health in relation to work;

ii) The adaptation of work to the abilities of the workers in the light of their state of physical and mental health.

Unfortunately, the workers that are covered by these services do not amount to 10% of Latin America's entire working population. Generally speaking, the public sector does not have established programs in this area, and only a few of the largest businesses have organized programs.

The advisory and health promotion functions specified in Article 5 of this Convention, which are eminently preventive, can serve as a model for the organization and structuring of any occupational health service or institution.

2. BACKGROUND

2.1 World Health Organization

The 1948 Constitution of the World Health Organization considers the enjoyment of the highest attainable standard of health to be one of the fundamental rights of every human being. Furthermore, it points out that the health of all peoples is fundamental to the attainment of peace and security and is dependent upon the fullest cooperation of individuals and States. It is incumbent on workers, the population group responsible for the generation of all activities, to guarantee that everyone will benefit from this health right. Therefore, the labor force must be kept in the best of health. This is an essential condition if the health needs of society in general are to be met.

On several occasions the World Health Assembly (WHA) has issued statements on the subject of workers' health. These have led to important resolutions, from which the following items are taken: reaffirmation that occupational health should be closely coordinated with, or integrated into, national health and industrial development programs (WHA, 1976); a request for decisive support for the promotion of better living and working conditions for workers, together with mention of the fact that, in order to establish and implement the strategies of for Health for All by the Year 2000, it will be necessary to promote occupational health services and strengthen institutions, training, and research in this field (WHA, 1980); a request that the Director-General of WHO promote the implementation of workers' health programs as part of the national primary health care system; preparation of guidelines on primary health care in the workplace, addressed particularly to the underserved working population, including the educational material needed at the various levels; and promotion of regional activities in workers' health (WHA, 1987).

2.2 Pan American Health Organization

The Plan of Action for the Implementation of Regional Strategies - Health for All by the Year 2000 includes the area of workers' health and calls for the expansion of occupational health services as one of its goals. The Plan envisages the following approaches: active participation of the workers and management in reducing disability from work-related accidents and diseases; improved knowledge of the cause of occupational disease; increased monitoring of environmental factors at the workplace; occupational health in community services; specialized institutions, laboratories, and training centers; legislation; intersectoral coordination; and effective information systems. Its areas of action include: policies promoting occupational health and safety; implementation of prevention, treatment, and rehabilitation programs; strengthening the capability of national institutions; integration of occupational health into industrial and agricultural development projects; and promotion of community participation.

2.3 International Labor Organization

Since its establishment in 1919, the ILO has traditionally given preferential attention to the protection of work and workers. This is reflected in the large number of international instruments (conventions and recommendations) focused on workers' health. Among the many ILO instruments that deal with workers' health in general or in terms of specific areas, Convention 161 and Recommendation 171 are of special interest here.

Convention 161 urges the Member States to progressively establish health services in the workplace for all workers, including those in the public sector, all branches of economic activity, and all businesses. It indicates that, when such services cannot be organized immediately, the countries should make plans for their establishment in consultation with the most representative organizations of employers and workers. The functions of these services are essentially preventive and they include, inter alia, the following: monitoring of harmful factors in the environment; surveillance of work-related changes in the health of workers; information, education, training, and advisory services on workers' health, occupational hygiene, and ergonomics; and first aid and emergency medical care.

3. IMPORTANCE OF WORKERS' HEALTH

The impact of workers' health on development is the social justification and the main economic rationale for the promotion of occupational health programs. Moreover, the impact of workers' health on the quality of life and well-being of workers, as well as their families and the community, is the ethical virtue and the principal social rationale for the promotion of occupational health. For this reason it is considered a human right.

3.1 Social Rights

Health is the basic human right of every worker as an individual. Other recognized human rights of workers are insurance against unemployment, illness, and disability. One of the most important social objectives is to secure the highest attainable degree of workers' health, which in turn will help the remaining population groups to achieve a satisfactory level of health and the countries to achieve their goals for social development.

3.2 Relationship between Workers' Health, Productivity, and Economic Progress

Health is desirable and necessary if a community is to be sound and creative, and if it is to produce more and have greater potential for stimulating development of all kinds. A good state of health of workers has a direct effect on individual and national production. It is a profitable investment. Since more than half the population in the

countries is economically dependent on the working population, the health of workers also affects family well-being. Occupational health is especially important for independent workers and those in the informal sector because their earning capacity depends on their staying healthy (4).

In times of economic crisis, the reduction in income affects the people's health, and it has a much greater impact for the deprived and the poor working classes than it does for people of means and organized workers. By definition, an economic crisis involves a decline in income and a contraction in public resources, both of which are felt in the health sector. Accordingly, it is necessary to be imaginative and efficient and to find short-term solutions such as those that can be achieved through the maintenance of workers' health, which is related to an increase in goods, services, and wealth and to a decrease in the high cost of curative medical care. The economic repercussions of work-related pathology, which in a normal economic situation could be absorbed, in a crisis situation lead to financial breakdown. Unfortunately, the number of deaths from occupational accidents in the developing countries is four times greater than in the developed countries, which further impairs their financial capacity.

Preventive attention to workers' health--i.e., the avoidance of its deterioration--decreases the requirement for medical and hospital care during the final period of their lives when they become dependent and hostages to illness. It also lengthens their average active lifespan, which is the basis not only of economic benefits but also for seeing the realization of their expectations for family and social life.

Work-related accidents and diseases place a heavy burden on national economies. It has been estimated that in some of the industrialized countries their total direct and indirect cost amounts to about 4% of the gross national product. The expenses due to work-related accidents and diseases that have to be absorbed by enterprises affect the cost of production, and this loss is passed on to the consumers of the products and services. When poor management allows these costs to be shifted to social security, which happens when the enterprises can easily hire other workers to replace the victims of illnesses and accidents, it only means that the burden has been passed on: the risk factors that caused the injury have not been acted on, and the economic damage remains the same.

3.3 Contribution to Reducing the Cost of Curative Care, Rehabilitation, and Disability Compensation

Occupational hygiene and safety, by identifying, eliminating, and controlling risk factors in the workplace, reduce the damage to workers' health and thus cut down on the need for curative care. Workers' health education and the inclusion of health and prevention in training programs develops their capacity for self-care, reduces the human factors that cause accidents and other health problems, and also lessens the need for access to curative medical care.

Occupational medicine, by seeking to maintain balanced health for workers through preventive medical measures, to identify prodromic signs of disease, and to promote early diagnosis of pathological conditions, permits more rational use of curative services, decreases the number of serious and incapacitating clinical situations, maintains working capacity over longer periods, and avoids or delays the onset of disabilities. Also, measures to adapt working conditions to the workers' abilities and capabilities will help to prolong their average active lifespan.

All this, coupled with ergonomics and good planning of the workplace and the production process, leads not only to fewer medical consultations and a reduced burden for the health services but also to lower costs for compensation due to avoidable disability.

3.4 Reduction in Human Suffering

It is morally unfair for people who are making an effort to produce the goods and services that will be used to ensure production and reproduction of the human species to have to endanger their health, physical integrity, well-being, and working capacity. Care for persons who become disabled because of poor working conditions--who in many countries of the world outnumber those wounded and disabled in war(*)--is not always provided by the most appropiate means and using all the techniques and knowledge available to avoid human suffering. In addition to the principle of equity that requires everyone to have equal access to the same curative care, it is of the utmost importance, also for reasons of equity, that all workers have the right to preventive measures.

3.5 Relationship between Worker's Health, Social Development, and Well-being

A workplace outfitted in accordance with the principles of hygiene, safety, and ergonomics contributes to the stability and prosperity of the enterprise. Ergonomically designed machines and tools, working environments with a minimum of health risks, and organization and pacing of the work to avoid fatigue, together with remuneration that allows personal development, will permit optimum use of the means of production and be factors of stability and social well-being.

Technology that has not been adapted to the cultural and social level of the workers may give rise to dissatisfaction expressed in terms of reduced quality and quantity of production, excessive turnover, and absenteeism. This discontent affects motivation and generates aggressive attitudes, deliberate waste, threats of violence, and labor conflicts. The existence of considerable numbers of workers who find themselves working in conditions and environments that are undesirable for their

(*) In many countries the risks of work are greater than the risks of war. Each year 100,000 workers lose their lives and 1,500,000 are left disabled due to work-related accidents or occupational diseases (ILO, 1988).

health and safety, coupled withlack of adequate health care, may lead to dissatiction and the formation of pressure groups and may come to endanger the peace and harmony of the countries.

3.6 Legislation on Workers' Health

According to PAHO Scientific Publication 509, The Right to Health in the Americas, the constitutions of the countries refer to health as a right. The constitutions of the Ibero-American countries also set forth workers' rights and guarantees precisely and in detail, and many of them refer specifically to occupational safety and health. The constitutions of the English-speaking countries in the Region do not include the right to work and the protection of workers, since these are considered social rights. Through the years, the ILO has performed an outstanding role in the protection of workers.

All the countries in the Hemisphere have specific legislation, regulations, and standards on occupational health. Apart from the fact that in some instances there is need for revision and updating, the problem with these laws is that they are not fully understood and accepted, which results in a low level of compliance. The WHO publication International Digest of Health Legislation covers the subject of occupational health and safety.

4. CURRENT SITUATION

4.1 Demographic and Labor Data

Canada and the United States of America have a population of 276 million (1990), and the number is expected to reach 295 million by the year 2000. The urban population in these countries is 205 million (1990), or 74.3% of the total, and by the end of the century it will be 221 million (75%).

Latin America and the Caribbean have a combined population of 448 million (1990), and this figure is expected to be on the order of 540 million by the year 2000. The urban population will increase by 29%, from 324 million in 1990 to 417 million at the end of the century. The rural population will decline from 28% (1990) to 23% (2000). The urban centers have 72.3% of the total population, and by the end of the millennium they will have 77.2%.

The working-age population, from 15 to 64 years of age, numbers 269 million (1990) and will be 363 million by the year 2000. It accounts for approximately 60% of the total population in the countries (Table 1). If it is assumed that the economically active population of Latin America and the Caribbean represents 33% of the total, the estimate as of 1990 comes to 135 million.

Women's participation in the labor force is one of the indicators of their contribution to economic development. According to ILO estimates, the female work force represented 30.2% of the economically active population of Latin America and the Caribbean in 1986 (Table 2). These statistics also indicate that women's participation has increased by 12.2% over the figure for 1950 (Table 3). Women's domestic work, largely unpaid, is a strong factor in the accumulation of capital at all levels of development.

Working minors (from 10 to 14 years of age) may account for as much as one-fourth of the economically active population in several of the countries. In 14 countries, according to ILO figures, there are about 5 million working minors (Table 4). Figures available from other sources lead to the recognition that this information is based on high underregistration. Some studies confirm the participation of a considerable proportion of minors under 10 years of age in the labor market. Since child labor is legally prohibited, these data are not easily available.

4.2 Indexes of Workers' Health Coverage

The concept of coverage is different in the Ministries of Health and Labor, the social security institutions, and the labor centers. These differences refer to the right of access to care, the kind of benefits (breadth of coverage), and the comprehensiveness of the care. Data on the coverage of the working population appear in paragraph 4.4.c., "Current Situation." Additional information on these indexes and on the concept of occupational health coverage is contained in Annex II.

4.3 Principal Health Problems of Workers

4.3.1 Work-Related Accidents

Accidents continue to be a serious problem in terms of both human suffering and material loss. Some are fatal and others cause permanent or temporary, total or partial disability, which can last a matter of months or years. All accidents cause suffering for the victim, many affect the family as well, and, if they are fatal or cause permanent disability, they are a catastrophe to family life. Moreover, any accident represents a loss of health, time, and money. Normally, occupational accidents are easily identifiable and their causal connection can be clearly established. However, the data are not yet in hand for defining the true extent of the problem in Latin America and the Caribbean. There are different criteria for consolidation and for analysis, and information on certain economic activities, such as agriculture, construction, mining, small businesses, as well as the informal sector, is incomplete.

The statistics represent significant underregistration because of the following factors, among others: low indemnities that lead workers

who have had accidents to continue working in order to receive their full wages, fear of dismissal, and the desire of employees to avoid paying higher insurance premiums due to reclassification of the risk class. In some countries, because it is faster to obtain a pension for disability due to a common illness, and especially because the amount is more than what can be received for an occupational injury, workers prefer to report an occupational accident as a common accident, and this increases underregistration even more. According to ILO data and the projections of Bird,(*) underregistration is at least 50%. It is estimated that in Latin America and the Caribbean about 95 million accidents occur annually and that at least 160,000 of them are fatal (441 deaths per day and 19 per hour). Deaths in the 15-to-54 year age bracket are 40.4% (Table 5).

Accident mortality rates are as much as 62 times higher than mortality rates for complications of pregnancy, childbirth, and the puerperium. Working mothers, unfortunately, are victims of both situations (Table 5).

In 26 of the countries in the Region, accidents are among the five leading causes of death (Table 6). In the United States, there were 48,564,000 occupational accidents in 1982, with 4,090,000 deaths and 368,751,000 days of work lost (Yearbook of Labour Statistics, ILO).

Statistics available from the ILO show 2,000,000 occupational accidents per year in Latin America and the Caribbean. This means that 7,000 accidents occur every working day, or 15 accidents a minute given an eight-hour day (Table 7). These figures correspond for the most part to accidents reported to the social security institutions and refer to their beneficiaries.

According to this information, assuming for the sake of argument that it covers all occupational accidents, two thirds of the economically active population of Latin America and the Caribbean can be expected to have at least one accident involving an injury in the course of their 45 years of working life. If it is further assumed that 40% of the active population is covered by social security and that the workers who are not covered have the same accident incidence rate as those who are covered, then it may be concluded that the total number of occupational accidents involving disability for Latin America and the Caribbean is 5,000,000. This is to say, each worker will have two (more exactly, 1.7) accidents during his or her working life. Table 8 shows the incidence of reported occupational accidents, which would indicate that at least one in 10 workers suffers an occupational injury every year. On the basis of these figures, it could be inferred that each worker has more than four accidents in the course of his or her working life.

(*) Estimates based on the Bird Triangle, which took into account a study of 297 U.S. companies in 1969 (vol. 54, Occupational Safety and Health Series, ILO).

The incidence of occupational accidents and diseases is six to 10 times greater in the developing countries than in the industrialized countries. Occupational accident mortality in some countries of Latin America and the Caribbean is as much as four times greater than in developed countries (Table 9). Fatality from occupational accidents has shown an upward trend in eight countries of the Region and has been stable in four countries during the 1982-1986 period. Comparison with the figure for the United States shows values ranging from nine to 45 times greater (Table 10). In 1981-1985, the frequency of fatal occupational accidents in agriculture, hunting, and fishing was four to 28 times greater than in developed countries; in mining and quarrying, figures two to 18 times greater were observed, and in construction they were three to 11 times greater (Table 11).

One indicator of the seriousness of occupational accidents could be expressed as permanent disability. In El Salvador one of every 49 accidents causes permanent disability. In Panama the ratio is on the order of 63 to one (5). In Brazil it is 39 to one (6). During the period 1979-1983, occupational accidents in Brazil disabled 25,938 persons, and disability rates doubled from 0.29% (1979) to 0.54% (1983) (7). Each year, occupational accidents in eight countries of Latin America and the Caribbean cause a loss of about 14 million days of work, or the equivalent of at least 50,000 person-years, corresponding to a total shutdown of the industries in these countries for 10 days (Table 12).

Accidents in itineri, defined as events that injure the worker while he or she is in transit between home and the workplace, are usually not registered as such by the countries. In the case of Brazil, where these accidents are considered work-related, they accounted for 5.8% of all occupational injuries reported in 1985 (6). Accidents in transit are often work-related when they stem from performance of a work-related activity. In Latin America and the Caribbean, accidents that take place while a worker is commuting plus those that occur directly in the performance of a work-related activity may account for at least half of all fatal accidents (8). For example, in 1988 the Social Security Institute of Colombia reported that 47.1% of fatal work-related accidents occurred on the public streets and highways (9).

Technological accidents and those that occur at home and in schools are frequently work-related but not classified as such for lack of a formal contractual relationship. A study conducted in Colombia in 1977-1980 on a working population of 8,408,176 revealed 2,348,320 work-related accidents, for an occurrence rate of 279.3 per 1,000 workers, 55.5% of whom were disabled. Of these accidents, 11.5% occurred in homes and 15.5% on the streets and highways (10).

4.3.2 Occupational Diseases

Occupational diseases are a priority public health problem, not only because of the high morbidity and high index of serious cases but

also because they affect persons during their productive years and give rise to serious social and economic problems. Even though there is no registration of mortality from occupational diseases, the shorter life expectancy for people in certain occupations, such as mining, confirms its importance.

The underregistration of occupational diseases is more obvious than that of occupational accidents. In published data, these diseases account generally for only 0.5% of the registered cases of occupational pathology (accidents and diseases), except in Chile and Panama (Table 13). There are two major types of reasons for the limited knowledge about their magnitude:

a) Reasons related to diagnosis:

- The diversity of definitions and coverage of occupational diseases by different agencies within the same country and from one country to another. The list of occupational diseases that entitle a worker to compensation tends to be short and varies widely between agencies and countries.

- Limitations in terms of clinical, laboratory, administrative, and legal criteria and standards (8).

- The insidious nature of occupational diseases, which makes them difficult to identify, especially in their early forms (8).

- The nonspecific nature of the signs and symptoms of some of the occupational diseases, which causes them to be masked or be confused with some other nonoccupational pathology (8).

- The difficulty of diagnosis and confirmation due to lack of appropriate data, knowledge, and equipment (11).

- The limited training of health personnel in pathogenesis and diagnosis, and the workers' insufficienat awareness of the signs of health changes caused by occupational risk factors.

The process of recognizing occupational diseases is slow, costly, and conflictive, especially in the case of new raw materials, processes, and products. Moreover, by the time such recognition can be made, the clinical situation is often already well established and at an advanced stage (12).

b) Reasons related to registration:

- The reporting of occupational diseases is not always compulsory. When it is, the physicians are normally unaware of the administrative procedures involved. Company physicians do not always have enough technical independence and guarantees to comply with compulsory reporting (8).

- Existing reporting and registration systems are sometimes of little use in getting the research, prevention, and control activities under way that are expected in an epidemiological monitoring system. This discourages reporting (8).

- Without suitable coordination, the diversity of institutions concerned leads to fragmentation of information.

The data that are available, mainly the results of epidemiological studies (see Annex III), would suggest that occupational diseases are much more important than is indicated by the meager statistics on officially reported cases.

4.3.3 Diseases Potentiated, Triggered, Aggravated, or Accelerated by Occupational Exposure and Working Conditions

a) Infectious and parasitic diseases. These are acquired due to inadequate basic sanitation, especially in the workplace, in agriculture, the informal urban sector, mining, construction, and small enterprises.

- Zoonoses--diseases transmitted to man by contact with animals or by the manipulation or consumption of products of animal origin, such as brucellosis and leptospirosis--are of special importance as workers' diseases. Brucellosis causes reduced performance and absenteeism, especially in rural workers and workers in industries that handle animal products and by-products. Leptospirosis is an occupational risk for workers in rice fields, cane fields, sewers, and slaughterhouses. A study of 650 coal miners conducted in Colombia in 1987 showed a 75% prevalence of intestinal parasitism.

- There were approximately 1,100,000 cases of malaria in Latin America in 1988, including relapses and reinfections. This figure had risen after 1985, when 910,000 cases were registered. There is a macroregion in the Americas, the Amazon basin, which has special features and problems connected with development of the social and economic infrastructure. It is an ecological macrosystem comprising large areas of Brazil, Bolivia, Colombia, Ecuador, French Guiana, Guyana, Peru, Suriname, and Venezuela, where close to three-fourths of the continent's malaria cases were registered in 1988. Workers involved in road construction, agricultural projects, mining, and settlement, in addition to being exposed to the pathology normally associated with their tasks, suffer more from the consequences of this disease because of the working conditions as such.

b) Psychosomatic illnesses. These are caused by factors in the working environment and by the nature, habits, and reactions of individuals. Consumption of and dependence on alcohol, cigarettes, and

medication are typical reactions to coping with situations that cause anxiety or other negative psychological effects. These manifestations may be associated with working conditions or caused by various work-related factors, such as problems of adaptation due to migration to urban areas and the introduction of new technology. Disturbances of sleep, appetite, and the gastrointestinal system and peptic ulcers may result from working in shifts.

c) Cardiovascular diseases. There is clear evidence that arterial hypertension is the most frequent alteration among the cardiovascular diseases and that moderate or serious high blood pressure increases the risk of morbidity and mortality from coronary, cerebrovascular, and renal conditions. In most of the countries of Latin America and the Caribbean, heart and cerebrovascular diseases rank as one of the five leading causes of death in the population aged 15 to 64. The occupational risk factors that lead to these diseases include: (a) exposure to various chemical substances, such as carbon disulfide, organic nitrates, arsenic, solvents, cadmium, and lead; (b) exposure to physical risk factors, especially thermal stress; (c) physical activity that involves arduous tasks or the lifting of very heavy loads; (d) shift work; and (e) mental stress from work involving heavy responsibilities and mental strain (13).

d) Musculoskeletal conditions. Some occupational groups, such as stevedores working near oceans and rivers, have an incidence of lumbago five times greater than the rest of the population. Back pain and pain in the shoulders and neck are the afflictions that have the strongest confirmed relationship to work. It is estimated that back pain affects more than half the working population at some time in their working lives (3). Such conditions tend to be more frequent in occupations that involve heavy manual labor, loading and unloading of materials, uncomfortable positions for long periods, frequent bending or twisting, and exposure to vibration. Other important etiological factors are trauma from carrying heavy objects on the back, and psychological, congenital, and inflammatory aspects (3). The occupational risk factors related to shoulder and neck pain include: ergonomically inadequate design of the workplace and inadvisable labor practices (13).

4.3.4 Gaps in Knowledge and Incomplete Assessment of Health and Exposure Conditions

Most of the countries of Latin America and the Caribbean have a need for information on the characteristics and magnitude of workers' health problems. Official registers usually only contain information on compensation. Data from the medical, nursing, or hygiene and safety services in private companies are frequently vague or incomplete, and they emphasize absences due to illness and accidents. In large sectors of the working population, such as agriculture, small business, construction, work at sea, temporary work, domestic work, information on health and working conditions is either very limited or nonexistent. The same is true of the elderly, minors, and women.

Scientific research on workers' health has been scarce, with little diversity in the subjects studied, and it has been slanted toward the analysis of biological and technical aspects and morbidity. It refers specifically to the factors affecting health, underplaying the identification and assessment of determining factors and risks and the analysis of other conditions, especially social conditions (14).

Generally speaking, limitations on research are found mainly in the following areas:

- Personnel trained in the methodology of occupational health research.

- Production of epidemiological studies.

- Use of multidisciplinary approaches.

- Methodologies for the analysis of interaction among various risk situations.

- Appropiate use of categories and variables.

- Development of studies on the health-work-disease processes in specific situations, such as combined exposures, fatigue, stress, wear and tear, psychological disturbances, mutagenesis, carcinogenesis, teratogenesis, abortion, and sterility.

- Studies on the various age groups of workers (minors, youth, adults) and adequate comparisons between the sexes (working women).

- Analysis of the economic and social costs of work-related health problems.

- Studies on interventions for the control of health determinants and their consequences in the areas of legislation, planning and organization of services, human resource training, information and epidemiological monitoring systems, education, and the participation of workers and employers.

- Studies on technology for the control and improvement of working conditions, to support the implementation of national occupational health policies.

The lack of national and international systems for the coordination of occupational health research makes it difficult to learn about the results of studies and how they are being used in the practical control and management of current and future problems.

4.3.5 Limitations in Training and General Lack of Knowledge about Altered Health Symptoms, Occupational Risk Factors, and Prevention Measures

There are substantial limitations on the development of occupational health programs for the training of health professionals and specialists in the various areas of workers' health. With regard to professional training, few of the universities offer undergraduate courses in occupational health, occupational medicine, hygiene, or industrial safety. When such courses are offered, they are for a very limited number of hours, which in the case of the medical schools (15) are often oriented toward the medical and legal aspects of classifying the occupational pathology and not toward understanding its origin or preventing the occupational risks that cause it. As a result, when it comes to medical practice, the physican fails to ask patients about their jobs and the conditions in their workplace (16).

With regard to graduate training, as of 1984 courses had been given in Canada and the United States and, in Latin America and the Caribbean, in Brazil, Chile, Cuba, and Mexico. Since then, graduate courses have been introduced in nursing and medical schools in Colombia and in medical schools in Peru, the Dominican Republic, Uruguay, and Venezuela. These efforts will yield limited number of professionals who, together with a few experts trained in foreign institutions, especially in North America and Europe, are prepared to meet the countries' needs.

The implementation of undergraduate and graduate courses will contribute to broader dissemination and to the establishment of information systems that will lead to more widespread understanding and acceptance of workers' health. Very few information and training materials have been developed for workers, but the urgent need to proceed with activities of this kind is recognized. There is a growing perception of the need to enlance the training programs for all the trades and professions by including areas on risk factors and workers' health, health symptoms and alterations, and basic prevention methodology as a means of promoting self-care.

4.4 Health Services Available to Workers

a) Interinstitutional and Functional Framework

Except in a few cases, national social and economic policies do not give clear and specific consideration, except in certain instances, to the health of the working population. Nevertheless, health is deemed to be a basic human right and an essential factor in the development process in all the countries. Their health programs are in keeping with the regional and world goals of Health for All by the Year 2000 and they include primary health care.

Responsibilities in the area of occupational health are distributed between the Ministries of Health and Labor and the social security institutions. There are only a few countries in which workers' health is the exclusive responsibility of the State through one of these institutions.

The United States and Canada have institutes specialized in occupational health in their health and labor sectors. Specialized occupational health institutes have been created in five countries of Latin America: Bolivia, Brazil, Chile, Cuba, and Peru. The Chilean institute has been incorporated into the National Health Institute as a department of occupational health. The Brazilian institute comes under the Ministry of Labor. Cuba has an institute of occupational medicine and another for occupational hygiene and safety. The institutes in Bolivia and Peru come under the Ministries of Health.

With very few exceptions, the programs conducted by the national institutions do not follow standardized programming criteria. This leads to overlapping activities, quantitative and qualitative deficiencies in coverage, concentration of activities on specific labor groups (usually those with higher incomes and those who work in large companies), and to underutilization of the scarce infrastructure available.

b) Functions of the State and Other Programs

Although all the countries have laws and regulations governing the functions of the State vis-à-vis the various institutions in the area of occupational health, the limited resources made available to the programs do not allow development of the functions envisaged. Except in the United States and Canada, Brazil, and Cuba, the ministerial units tend to have only one or two experts to cover the entire national activity, and there are quite a few Ministries of Health in which the individual responsible for occupational health is also responsible for other programs. Nevertheless, these state institutions have legally assigned functions, which are indicated in Annex IV.

c) Working Population Covered and the Most Common Health Benefits and Economic Compensation

From an analysis of the percentages of workers covered by social security in Latin America and the Caribbean, three groups of countries may be identified: those with more than 80% coverage, those with an intermediate coverage of 50% or more, and those with coverage indexes of less than half the working population, which according to Table 14 are the majority.

Social security benefits normally provide for curative care, for rehabilitation from work-related accidents and diseases, and common illnesses. As a way of ensuring better balance for the worker, several of the social security institutions have extended health care to the families of contributing workers. Unfortunately, in some of the countries such medical care only covers the children up to a certain age. Moreover, there are certain restrictions and conditions for access to care in the case of some of the medical specialties.

With regard to economic compensation, the workers usually have the right to receive about two-thirds of their regular wages. However, there are also limiting conditions, such as number of years of prior contribution required, number of days following confirmation of the disability, and a maximum period after which the compensation is reduced or ended. The workers' families have the right to a pension in the event of the worker's death.

Retirement pensions in the event of total disability or because of age are based on number of years worked. The main problem is the frequent devaluations and the fact that the pensions are not adjusted regularly to keep them up to date, as a result of which they are progressively more inadequate. This is much more serious when pensions are based on partial disability that involves a change in earning capacity. Several institutions provide one-time indemnization for certain kinds of disabilities, and the amounts are generally low. Some of the individuals covered, such as farmers and domestic workers, have only the right to medical care and cannot expect financial benefits.

More than 50% of the working population not covered by social security lacks access to any other public health service. Surveys conducted in 1984 in several of the countries indicate that 60% of the workers have access to curative care (including social security). Less than 10% of the workers receive overall care (including health services in the workplace) (Table 15). There are no data available on percentages of workers who can turn to private medical services and who have health insurance paid for by the employer or by themselves.

d) Available Human Resources

Workers' health care calls for multidisciplinary participation and services of varying complexity initiated in the workplaces themselves, in the homes of the workers when they have to work there, at the health centers, at the first level of referral (hospital), and at the other levels in the health services network. This involves enlisting not only the specialists in the various branches of occupational health but all the health personnel, and the direct protagonists, namely the employers and the workers. In view of the interrelationship between workers' health, working conditions and working environments, and living conditions, it is important to stress the need for participation by other sectors, including education, agriculture, transportation, mining, public works, industry, housing, work, planning, etc.

A study conducted recently in the countries of Central America, Panama, and the Dominican Republic showed the following human resources specifically devoted to occupational health (11):

- One occupational health physician per 100,000 workers (in the best of cases).

- One industrial hygienist per 250,000 workers.

- One nurse per 30,000 workers (in the best of cases).

- One nursing auxiliary per 40,000 workers.

- One technician or supervisor per 30,000 workers.

- One industrial safety engineer per 14,000 workers (in the best of cases).

From these ratios it may be concluded that, given the limited human resources devoted to occupational health, many of their duties are not being performed. In some countries the recommended ratios of occupational health personnel to workers are as follows:

- One occupational health physician per 1,000 to 5,000 workers.

- One industrial hygienist per 6,000 to 10,000 workers.

- One safety engineer per 4,000 to 6,000 workers.

- One nurse per 1,000 to 5,000 workers.

The training of occupational health experts in Canada and the United States is frequently revised in response to changing needs and technical and scientific progress. Some professionals working in Latin America have benefited from these training programs.

In Latin America, Chile has served as a training center for professionals, many of whom are working in different countries of the Region. In Cuba, since the establishment of a master's program geared especially to foreigners, a small (unfortunately) number of professionals have been trained. With the exception of Brazil, which in years past, especially late in the 1960s and in the 1970s, gave strong impetus to the training of occupational health physicians and industrial hygienists, the situation in the countries of Latin America and the Caribbean may be considered equally inadequate.

In most of the countries, the social security institutions are the best staffed with occupational health personnel. In addition to having specific personnel for occupational health, the health services provide sick workers with medical care on an outpatient basis and in hospitals, providing clinical and some types of specialized care. In some of the health centers, health promoters and sanitation inspectors participate in information and education campaigns, which may cover groups of workers.

e) Material Resources Available

There are limitations in almost all the countries with regard to the provision of laboratory instruments and equipment for medical and

field studies to assess the workplace and perform multiple tracking. What is available is usually located at the central level, which hinders its timely use and causes problems for the submission of samples.

The material resources in the five institutes of Latin America that specialize in occupational health need to be upgraded. They also have major problems in the maintenance of available instruments and equipment. This is because these pieces are usually manufactured in the United States, and to a lesser extent in Europe, and frequently there are no field offices in the countries well enough staffed to do the overhauling, periodic calibration, and repair. In some workplaces, generally the larger companies, there are material resources available, which are usually used for their own occupational health service. Moreover, the development of simple, easy-to-use, low-cost procedures that can be utilized with an acceptable degree of reliability in workers' health care has not been adequately promoted.

f) Financial Resources

The cutback in financial resources for health is a direct consequence of the countries' economic conditions. The occupational health situation in Latin America, even though workers' health is recognized as a right, is particularly worrisome. The fact that it is a recent trend related to industrialization, not always well planned, and that there is a lack of tradition, makes the allocation of needed funds especially difficult.

The social security institutions have the most financial resources for occupational health activities. The budgets for compensation and for indemnization for occupational accidents and illnesses are disproportionate relative to the modest amounts allocated for the promotion of workers' health and prevention activities. The budgets of the Ministries of Health and Labor are so tight that they seriously limit any steady and effective action and the scope of duties assigned. The social security institutions in some of the countries have special funds for education, information, and research in occupational health, but their administrative procedures are so troublesome that they make the utilization of such funds extremely difficult. The Latin American institutes specialized in occupational health have serious budgetary difficulties that do not allow them to undertake the development they would like to.

5. PROGRAM PROJECTIONS

5.1 Priorities

a) Stimulation of Political Will

The existence of political interest, and the confirmation thereof, is an essential prerequisite to the formulation and implementation of

effective occupational health policies. This interest may be generated in the following manner:

- By disseminating information on social and economic justifications and by exchanging experiences, knowledge, and research findings pertaining to occupational health, including the community,the workers, and the mobilization of employers.

- By focusing on workers' health jointly with the different sectors of the State, guilds and trade associations, and labor unions.

b) Establishment of National Policies on Workers' Health

The definition of a specific workers' health policy should be an integral part of economic development projects and of social plans, and it should take the following basic principles into account:

- Occupational health must be guaranteed for all workers, with emphasis on prevention and on vulnerable worker groups who receive insufficient health care and live in marginal circumstances.

- Occupational health should be included in or coordinated with the national health services within the context of primary health care as a means of developing a productive society and ensuring comprehensive health care for workers at or nearby the workplace.

- The formulation of occupational health programs should include actions aimed at health promotion, protection, treatment, and rehabilitation, focusing mainly on primary prevention.

- Institutional, human, and financial resources should be defined.

c) Development of Intersectoral Articulation and Coordination

Workers' health care requires the support of the entire health system and of all other social and economic sectors. The interrelationship between health, working conditions, economic and sociopolitical aspects, and individual as well as collective behavior requires both the incorporation of other areas of society's activities and the participation of workers and employers in the organization and administration of occupational health programs and services. This intersectoral mobilization may be facilitated in the following ways:

- By establishing national boards on workers' health that are properly organized and allow for the participation of both the various sectors involved (health, labor, social security, housing, transportation, industry, agriculture, mining, energy, planning, and education) and of employer and worker representatives.

- By basing local programming on full participation, as a means of coordinating the different institutional, labor, and community resources that exist in a given area, so as to provide occupational health care for specific groups of workers.

- By implementing and regulating legal instruments that define the responsibilities of each sector.

d) Upgrading of Knowledge on Various Aspects of Workers' Health

Information must be generated continuously for the implementation of occupational health programs based both on a greater understanding of etiology and causal factors and on the identification and analysis of trends and priorities, so as to be able to plan, organize, and evaluate results. This can be achieved in the following ways:

- By implementing epidemiological surveillance systems on workers' health.

- By developing lines of research/action and conducting epidemiological studies in such areas as: type and magnitude of health problems affecting workers who are not covered and special groups, alternatives for stimulating worker and employer participation, program schemes for underserved worker groups, development of appropriate technologies for the control of health determinants, and early diagnosis of changes in the health situation.

- By generating material aimed at increasing general awareness.

e) Development of Human Resources

Human resources development must be an integral part of any workers' health program and one of the first stages of program implementation, particularly with regard to the following:

- Changes in the theoretical and practical training curricula of health personnel to ensure the inclusion of education in workers' health at the undergraduate, graduate, and continuing education levels so that basic actions in occupational health are taken by professionals on a day-to-day basis. This involves providing instructions for physicians, nurses, engineers, administrators, veterinarians, and, in general, any professional, technical, and auxiliary personnel associated with the health system.

- Training of educators, instructors, and experts in the various disciplines related to workers' health.

- Basic training of workers so that they will participate in a conscious, responsible, and effective manner in mechanisms such as the national occupational health board, committees with equal worker/employer participation, and committees made up of community members. In addition, basic worker training helps to develop the workers' ability to care for their own health and to identify occupational risk factors, with the goal that their contribution to occupational health programs will be based on adequate technical knowledge.

f) Involvement of the Community, Particularly Workers and Employers

In order for this participation to be possible, the following mechanisms need to be reinforced:

- At the workplace: the establishment and operation of bipartite committees on occupational safety, hygiene, and health based on equal representation of workers and employers.

- At the national and local level: equal representation of workers and employers in existing structures such as occupational health councils and community associations.

- At the level of trade associations, industries, and labor unions: the establishment of specific working groups.

The following should also be considered:

- Development of collective and individual responsibility through the participation of existing community associations in identifying workers' health needs, proposing solutions, and planning and assessing occupational health services.

- Development of an appropriate legal base in accordance with the principles of participation and the right of access to information.

- Preparation of education and training programs supported with information and the ongoing dissemination of this information to develop preventive awareness.

g) Promotion Mechanisms for the Extension of Coverage

- Incorporation of occupational health actions into the health services network.

- Formulation of workers' health programs and inclusion thereof in the countries' health programs and socioeconomic development plans.

- Development of interinstitutional programs and projects for functional integration and coordination of their implementation.

- Promulgation and regulation of legal instruments that define the responsibilities of each sector and the obligation to establish occupational health services in the workplace.

- Adherence on the part of official health, labor, and social security institutions to the provisions currently in effect.

- Upgrading of knowledge and motivation of all personnel in health services and manpower programs to include occupational health activities.

- Cooperation with teaching institutions and scientific associations in the articulation of training with research/action.

- Training of primary health care personnel in matters relating to occupational health.

- Participation of occupational health experts in the reorganization and restructuring of health services.

5.2 Forms of Cooperation

Cooperation in support of occupational health will involve identifying and mobilizing governmental, bilateral, international, and nongovernmental institutions, and it will also require cooperation among countries, bearing in mind the different situations and needs of the national programs. This cooperation will be of a technical and scientific nature, on the one hand, and financial on the other. Some of the main elements of cooperation are:

a) Theoretical and practical training aimed at preparing program managers and administrators, experts in the different areas of occupational health, health personnel, technicians, health services personnel in the workplace, labor inspectors, employers, union leaders, and workers. This cooperation, in turn, will focus on the following areas:

- Identification of priority needs in the area of human resources.

- Exchange of information among universities and other institutions on the development and evaluation of curricula, exchange of materials, and participatory actions in education; preparation of new theoretical and practical training programs; initiation of courses and other training activities.

- Training of experts and teachers in the various areas of occupational health, and promotion of leadership capacity.

- Inclusion of occupational health in the training of other professionals and at all academic levels.

- Preparation of training materials on occupational health.

- Development of new strategies for the training of labor inspectors, managers, union leaders, and workers.

b) Development of research capacity and methodology in the area of workers' health, and promotion of multicenter proyect implementation, such as:

- Promotion of teaching activities articulated with research/ action.

- Support for the development, discussion, and evaluation of multicenter projects.

c) Identification and mobilization of internal and external resources in support of national occupational health programs, as well as intercountry, subregional, and regional programs, with a view to improving national organizational, technical, scientific, and financial capacities. The following approaches are envisaged:

- Contacts with donor and technical cooperation institutions.

- Preparation of projects in priority areas.

- Development of cooperation networks among institutions in different countries on subjects of mutual interest.

- Incorporation of workplace prevention programs into health plans and development programs.

d) Establishment of information systems for the dissemination of technical and scientific knowledge and for use by the general public, as a way of facilitating general understanding and participation, particularly on the part of employers, managers, and workers. This cooperation should allow for the following:

- Dissemination of information that exemplifies the current problems and promotes the improvement of occupational health programs and their cost-benefit ratios.

- Exchange of experiences among countries that use information systems already existing in developed nations and established by international agencies.

- Preparation of materials for motivation and consciousness-raising in general, which will be particularly useful to employers, managers, and workers and will facilitate the development of a preventive attitude and self-care.

e) Development, organization, implementation, and assessment both of national plans aimed at the development of workers' health and of subregional cooperation programs, including:

- Implementation of a legal base that will establish a system for the organization of national plans and provide the necessary means for making the coordination process viable and feasible.

- Cooperation, which is necessary for action at the subregional level and provides benefits in addition to those provided for in national plans.

- Review of the laws, regulations, and standards required for the programming of actions in occupational health.

6. PAHO COOPERATION

Within its budgetary limits, PAHO cooperation will have to be adapted to the development level of the various country programs, which will provide opportunities and alternatives for the work of the Organization. In the next few years, PAHO cooperation will be focused along the following lines:

- Promotion of national and international action aimed at increased understanding and acceptance of the need to develop workers' health as an integral part of health as a whole and of the socioeconomic development in the countries, with stress on preventive action.

- Collection, analysis, and dissemination of information and guidelines on the identification, evaluation, and control of occupational risk factors and on the feasibility of reducing or eliminating them.

- Support for the ongoing collection of information on the status of workers' health with a view to identifying work-related pathology.

- Contribution to a better technical and scientific undestanding of the occupational health problems that have the greatest and most generalized impact on the work force.

- Strengthening of information and epidemiological surveillance systems so as to better identify problems and thus give direction to prevention and control activities.

- Collaboration in actions aimed at preparing subregional plans and projects, some of which are already underway, that will support the formulation of national plans.

- Assistance in preparing national plans for occupational health development which provide for adequate intersectoral and interdisciplinary collaboration, including community participation, and give preference to the extension of coverage to underserved groups based on the primary health care strategy and the concept of local health systems.

- Mobilization of internal and external, technical and financial resources in support of subregional and national programs, acting as a facilitator in the process.

- Support for the development of national human resources, including professionals and health personnel, as well as health care for workers and the community.

- Support for the development of research capability in occupational health.

Table 1

AGE DISTRIBUTION OF THE POPULATION
IN THE AMERICAS, 1970-2000

Subregion	% of population in each age group		
	Under 15	age 15-64	64 and over
Total for the Region			
1970	36,3	57,3	6,4
1980	32,3	60,5	7,1
1990	30,4	61,9	7,7
2000	28,3	63,7	8,0
Latin America			
1970	42,6	53,6	3,8
1980	39,4	56,4	4,2
1990	36,4	59,0	4,6
2000	32,9	61,8	5,3
Caribbean[a)]			
1970	41,3	53,8	4,9
1980	36,4	58,0	5,6
1990	31,3	62,7	6,0
2000	28,3	64,2	6,3
North America			
1970	28,4	61,9	9,6
1980	22,5	66,3	11,1
1990	21,4	66,1	12,5
2000	20,2	67,0	12,8

Source: United Nations, Global Estimates and Projections of Population by Sex and Age. The 1988 Revision. ST/ESA/SER.R/93, New York, 1989.

a) Includes Anguilla, Antigua and Barbuda, Netherlands Antilles, Bahamas, Barbados, Dominica, Grenada, Guadaloupe, Guyana, Cayman Islands, Turks and Caicos Islands, U.S. Virgin Islands, British Virgin Islands, Jamaica, Martinique, Montserrat, St. Kitts and Nevis, St. Vincent and the Grenadines, Saint Lucia, Suriname, and Trinidad and Tobago.

Table 2

DISTRIBUTION OF ECONOMICALLY ACTIVE POPULATION,
BY SEX AND COUNTRY, CIRCA 1985

Country	Year	Active Population	Men	Women
Argentina	85	11,452,444	8,380,179	3,072,265
Barbados	86	116,900	61,600	55,300
Bolivia	86	2,076,782	1,589,984	486,798
Brazil	85	55,098,494	36,625,371	18,473,123
Colombia*	85	9,552,066	6,399,885	3,152,181
Costa Rica	85	887,456	655,762	231,694
Cuba	86	4,342,280	2,786,597	1,555,683
Chile	86	4,269,000	2,988,600	1,280,400
Ecuador	85	2,854,130	2,261,467	592,662
El Salvador	80	1,622,217	1,056,652	565,565
Guatemala	85	2,254,368	1,937,481	316,887
Haiti	85	3,150,632	1,699,013	1,451,619
Jamaica	85	1,042,400	563,350	479,050
Mexico	85	23,133,573	18,207,922	4,925,651
Panama	85	715,224	488,081	227,143
Paraguay	85	1,278,569	977,254	301,315
Peru	86	2,099,987	1,212,259	887,728
Puerto Rico	87	993,670	634,958	358,711
Trinidad and Tobago	85	465,000	310,000	155,000
Uruguay	85	1,172,300	784,200	388,100
Venezuela	86	6,107,115	4,433,105	1,674,010
TOTAL		134,684,607	94,053,720 (69.8%)	40,630,890 (30.2%)

Source: ILO, Yearbook of Labour Statistics, Geneva, 1987.

* Colombia, National Administrative Department of Statistics.

Table 3

PARTICIPATION OF WOMEN IN THE LATIN AMERICAN LABOR FORCE, 1950-1985

Year	Economically active female population	
	Number in thousands	% of total labor force
1950	10,334	18.0
1975	22,753	22.3
1980	27,108	22.7
1985	32,639	24.2

Source: ILO, Labour Force Estimates and Projections, 1950-2000, 2nd. ed., vol. V, World Summary, Geneva, 1977.

Table 4

WORKING MINORS IN SELECTED COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, CIRCA 1982

Country	Year	Active minor population (ages 10-14)	% of EAP***
Argentina	83	198,034	8.1
Bolivia	76	71,636	13.1
Brazil	80	1,922,218	14.2
Colombia*	80	1,097,334	11.4
Costa Rica**	83	19,859	2.3
Ecuador	82	64,957	6.3
El Salvador	80	85,727	5.4
Guatemala	81	78,878	10.4
Haiti	82	138,823	24.0
Honduras	83	78,755	14.8
Mexico	80	1,121,816	12.1
Panama	80	9,572	4.2
Paraguay	82	45,140	11.8
Peru	81	124,231	5.7
TOTAL		5,056,980	

Source: Prepared on the basis of: ILO, Yearbook of Labour Statistics, Geneva, 1983 and 1984.

* Ages 6-17.
** Ages 12-14.
*** Economically active population.

NOTE: Information is unavailable on children under the age of 10 working in the various countries (except Colombia).

Table 5

NUMBER OF DEATHS FROM ACCIDENTS* AND MORTALITY RATES

Country	Year	Motor vehicle accidents	Accidental falls	Other accidents	Lesions: unknown whether accidental or intentional	Total deaths	Mortality rate x 100,000	Complications of pregnancy birth, puerperium	Mortality rate x 100,000
Argentina	81	3,750	1,368	7,175	1,153	...	...	472	3.3
Bahamas	81	22	9	64	12	107	50.9	3	2.8
Barbados	84	24	9	38	1	72	28.5	3	2.3
Belize	84	11	...	46	1	58	37.2	3	3.9
Brazil	83	20,061	2,319	22,376	11,217	55,973	...	2,116	...
Colombia	81	5,067	1,303	6,513	1,758	14,641	55.4	969	7.3
Costa Rica	83	200	135	309	9	653	26.8	19	1.6
Cuba	83	...	...	6,628	...	...	...	75	1.5
Chile	83	972	501	2,098	4,522	8,093	69.3	105	1.8
Dominica	84	8	...	7	...	15	19.5	1	2.5
Ecuador	80	2,123	452	2,299	119	4,993	61.5	426	10.6
El Salvador	84	713	214	1,247	1,288	3,462	...	99	4.2
Guatemala	81	...	...	...	...	5,787	81.4	326	9.3
Honduras	83	...	...	1,729	...	...	...	28 (1981)	...
Mexico	82	17,440	4,709	32,814	797	53,697	73.4	2,166	5.9
Panama	84	346	73	345	197	961	44.9	28	2.7
Paraguay	84	201	60	366	47	674	29.7	155	13.7
Peru	82	...	...	5,557	...	...	...	576	6.4
Dominican Republic	81	490	20	554	581	1,645	29.5	127	4.6
Suriname	82	69	11	104	20	204	56.7	10	5.4
Uruguay	84	269	147	754	4	1,174	39.3	20	1.3
Venezuela	83	4,801	729	3,256	...	8,786	53.6	303	3.7
TOTAL						160,995		8,030	

Source: Prepared on the basis of: PAHO, Health Conditions in the Americas. 1981-1984, Scientific Publication No. 500, Vol. 1.

* Does not include suicide, homicide, legal interventions, or operations of war.

Table 6

MORTALITY FROM ACCIDENTS (*) AND RANK
AMONG THE FIVE LEADING CAUSES OF DEATH

Country	Year	Rank	Rate per 100,000 population
Argentina	86	4	40.2
Bahamas	86	3	53.2
Barbados	88	5	32.3
Belize	84	2	36.5
Brazil a/	86	4	51.4
Canada	86	4	37.3
Colombia	84	3	49.9
Costa Rica	88	3	33.5
Cuba b/	88	3	81.5
Chile	87	3	58.8
Ecuador	87	2	48.1
El Salvador	84	1	73.1
United States	87	4	40.3
Guatemala	84	4	48.0
Guyana	84	3	34.0
Honduras b/	83	1	42.2
Jamaica	84	5	17.2
Mexico	86	2	55.4
Nicaragua	77	3	40.3
Panama	87	3	39.6
Paraguay a/	86	5	31.0
Peru	83	5	27.9
Dominican Republic	85	5	26.0
Suriname	85	3	43.5
Uruguay	86	4	44.4
Venezuela	85	3	47.0

(*) Accidents (E800-E949, E980-E989). Does not include suicide, homicide, legal interventions, or operations of war.

a/ Reporting area.
b/ All accidents and cases of violence (E800-E999). Includes suicide, homicide, legal intervention, and operations of war.

Source: PAHO, Technical Information System.

Table 7

ACCIDENT VICTIMS AMONG WORKERS IN SELECTED COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, 1982-1987
(ACCIDENTS REPORTED AND SUBJECT TO INDEMNITY)

Country	Years					
	1982	1983	1984	1985	1986	1987
Argentina	61,525	70,658	98,051	...	...	...
Barbados	869	1,351	778	611	395	882
Belize	...	660	720	565	...	...
Bolivia	2,238	2,312	2,013	2,200	1,416	397
Brazil	1,078,800	926,343	878,337	938,500	983,042	...
Colombia[1]	102,784	91,854	89,895	87,322	96,709	100,249
Costa Rica	49,620	55,337	...	72,600	77,856	50,667***
Cuba	...	64,559	65,835	62,556	63,467	...
Chile	72,539	77,193	99,884	122,543[3]	...	...
Ecuador	...	1,472	1,569	1,750	1,500	1,717
El Salvador	8,320	8,555	8,376	9,553[5]	...	10,193[5]
Guatemala	83,060	81,984	85,268	81,495	84,981	
Guyana	7,964	9,922	8,938	9,396	6,608	4,906
Haiti	1,736*	1,979*	1,845*	1,883*	1,839	1,818
Honduras[5]	4,470**	2,753**	3,143**	3,736**	3,657**	4,721
Jamaica	2,189	1,962	...	...	...	...
Mexico	524,000	505,981	524,684	500,516	546,182	...
Nicaragua[5]	6,990	7,933	8,048	5,813	5,176	5,347
Panama	26,632	25,114	26,393	23,573	19,474	20,792
Paraguay[4]	...	...	...	...	2,088	2,320
Peru	830	688	753	6,748	6,061[2]	8,320[2]
Dominican Republic	...	...	...	...	2,495[5]	4,178
Suriname	6,894	4,395	2,273	3,419	2,803	2,217
Trinidad and Tobago	2,207	1,880	1,633	1,241	967	923
Uruguay	33,656	30,487	30,094	31,865	34,432	...
Venezuela	13,930	11,350	9,660	9,708	10,128	5,309
TOTAL	2,091,253	1,986,722	2,010,713	1,977,593		

* Includes occupational diseases. The year concludes in September of the year indicated.
** Includes accidents en route to and from work.
*** Data for the first three months.

1 Colombia, Social Security Institute.
2 Peru, Social Security Institute.
3 Accidentes de Trabajo y Enfermedades Profesionales y Accidentes Escolares. Ministerio de Salud, 1985.
4 Second Latin American Conference on Workers' Safety and Health. 31 October-4 November 1988.
5 PAHO. Health Situation of Workers in the Countries of Central America, Panama, and the Dominican Republic. Subregional Report, September 1989.

Sources: ILO, Yearbook of Labour Statistics. 1987 and 1988.

Table 8

INCIDENCE OF WORK-RELATED ACCIDENTS REPORTED PER 10,000 INHABITANTS IN THE ACTIVE POPULATION, BY COUNTRY, CIRCA 1986

Country	Year	Total active population	Reported accidents	Incidence
Barbados	86	116,900	395	33.8
Bolivia	86	2,076,782	1,416	6.8
Brazil	85	55,098,494	938,500	170.3
Costa Rica	85	887,456	72,600	818.1
Cuba	86	4,342,280	63,467	146.1
Chile	85	4,236,100	122,543	289.2
Guatemala	85	2,254,368	81,495	361.5
Haiti	85	3,150,632	1,883	5.9
Panama	85	715,224	23,573	329.6
Paraguay	87	1,334,500	2,320	17.4
Peru	86	2,099,987	6,061	28.8
Trinidad and Tobago	85	465,000	1,241	26.7
Colombia	85	9,552,066[1]	87,322[2]	91.4
El Salvador	85	1,597,136	9,553	59.8
Nicaragua	86	1,142,867	5,176	45.3
Dominican Republic	87	1,915,380	4,178	21.8
Honduras	85	1,296,140	3,736	28.8
Venezuela	85	5,567,057	5,103	9.2
TOTAL		97,848,369	1,430,562	146.2

[1] Colombia, National Administrative Department of Statistics, 1985.

[2] Colombia, Social Security Institute.

Source: ILO, Yearbook of Labour Statistics, Geneva, 1988.

Table 9

MORTALITY FROM WORK-RELATED ACCIDENTS PER 10,000 INHABITANTS IN THE ECONOMICALLY ACTIVE POPULATION, BY COUNTRY, CIRCA 1985

Country	Year	Economically active population	Fatal accidents	Mortality
Barbados	86	116,900	6	51.3
Bolivia	85	1,996,459	29	14.5
Brazil	85	55,098,494	4,384	79.5
Colombia	85	9,552,066	331	34.6
Costa Rica	84	794,426	58	73.0
Cuba	86	4,342,280	316	72.7
Chile	82	3,660,800	36	9.8
United States	86	119,540,000	3,750 (1985)	31.3
Guatemala	85	2,254,368	57	25.2
Haiti	85	3,150,632	9	2.8
Jamaica	82	1,048,600	5	4.7
Panama	85	715,224	56	78.2
Peru	86	2,099,987	68	32.3
Trinidad and Tobago	85	465,000	17	36.5
Venezuela	85	5,567,057	45	8.0
Sweden	80	4,318,000	126	29.2
Holland	80	5,514,200	88	16.6

Source: Prepared on the basis of: ILO, Yearbook of Labour Statistics, Geneva, 1984, 1987, 1988.

Table 10

FATALITY PER 1,000 WORK-RELATED ACCIDENTS REPORTED

Country	1982	1983	1984	1985	1986
Argentina	1.44	1.02	1.34	...	...
Barbados	5.75	2.22	2.57	4.90	15.1
Belize	...	6.06	9.72	15.92	...
Bolivia	16.08	16.86	14.40	13.18	14.2
Brazil	4.16	4.54	5.13	4.67	4.65
Colombia	2.98	2.98	2.56	3.79	...
Costa Rica	...	1.03	0.92	...	...
Cuba	...	4.38	4.72	5.40	...
Chile	0.49	0.85	1.07	...	...
Ecuador	...	...	68.19	...	...
Guatemala	2.63	1.20	0.77	0.69	0.50
Guyana	1.63	2.41	...	...	...
Haiti	4.60	5.55	3.25	4.77	...
Jamaica	2.28	0.50	...	...	...
Mexico	1.87	1.62	1.37	...	...
Panama	1.99	2.03	1.93	2.37	...
Suriname	0.29	0.68	0.43	1.16	...
Trinidad and Tobago	2.26	3.19	5.51	13.69	...
United States of America	1.80	1.4	1.5	1.4	1.4
Uruguay	2.49	1.64	0.79	...	...
Venezuela	8.82	7.40	6.00	4.63	...
Spain	...	1.9	2.4	2.5	2.3
Switzerland	...	0.8	0.6	2.1	2.1
Sweden	...	1.2	1.1	0.9	1.1

Table 11

FREQUENCY OF FATAL WORK-RELATED ACCIDENTS BY SECTOR OF ECONOMIC ACTIVITY IN SELECTED COUNTRIES, 1981-1985.

Country	A. Agriculture, forestry, hunting, and fishing (*)				
	1981	1982	1983	1984	1985
Barbados	0.100	0.120	...	0.120	...
Belize	...	...	0.080	0.070	0.240
El Salvador	1.040	0.510	0.450	0.850	...
Guatemala	...	...	...	...	0.640
Peru	....	...	...	0.010	0.010
Finland	0.197	0.118	0.114	0.030	0.047

Country	B. Mines and quarries (*)				
	1981	1982	1983	1984	1985
Bolivia	0.650	0.385	0.385	0.206	0.278
El Salvador	1.870	1.420	...	...	...
Guatemala	...	...	...	...	0.640
Peru	...	...	...	0.440	0.160
Finland	0.100	0.100		0.778	0.334

Country	C. Construction (**)				
	1981	1982	1983	1984	1985
Argentina	0.700	0.520	0.430	0.750	...
Cuba	...	...	0.187	0.186	0.194
Panama	0.320	0.260	0.060	0.130	0.150
Suriname	0.220	...	...	...	...
German Democratic Republic (***)	0.090	0.070	0.070	0.070	0.070

(*) Rates per 1,000 workers exposed to risk.
(**) Rates per 1,000 employed workers.
(***) Includes quarries.

Source: ILO, Yearbook of Labour Statistics, Geneva, 1988.

Table 12

WORKDAYS LOST AS A RESULT OF WORK-RELATED ACCIDENTS IN SELECTED COUNTRIES OF LATIN AMERICA AND THE CARIBBEAN, 1982-1987

Country	1982	1983	1984	1985	1986	1987
Argentina	991,800	1,224,940	1,572,550	...	...	...
Bolivia	...	...	...	5,704	5,559	...
Guyana	127,029	365,612		400,299	191,205	...
Haiti	107,027	165,794	111,838	147,727	107,502	...
Mexico	9,497,000	6,889,000	7,489,000	...	...	...
Peru	1,020,030	635,371	753,859	...	...	...
Suriname	55,026	57,121	22,787	3,415	15,234	...
Cuba	...	1,358,470	1,472,600	1,545,050	1,533,300	...
Chile	1,056,870	1,129,870	1,338,540	774,280	...	...
Colombia (80)[1]	1,006,136	...	...	...	...	...
Paraguay[2]	...	...	...	...	67,920	77,799
TOTAL	13,860,918	11,826,178	12,761,174			

Sources: ILO, Yearbook of Labour Statistics, Geneva, 1987 and 1988.

1 Colombia, Social Security Institute.
2 Colombia, Second Latin American Conference on Workers' Safety and Health, 31 October-4 November 1988.

Table 13

PERCENTAGE OF OCCUPATIONAL DISEASES REPORTED IN RELATION TO ALL WORK-RELATED PATHOLOGIES a/ SELECTED COUNTRIES, CIRCA 1980

Country	Year	%
Chile[1]	1983	7.7
Panama[1]	1980	4.6
Argentina	1980	0.5
Brazil	1984	0.4
Colombia	1982	0.6
Mexico	1980	0.4

a/ "Work-related pathology" is understood to be the total number of reported cases of occupational diseases and work-related accidents.

Sources: 1 PAHO, Regional Seminar on the Health Services for Unprotected Working Populations in Developing Countries. Country reports. 1984.

CLASET/ILO, Safety and Hygiene at Construction Sites in Latin American Countries.

Table 14

PERCENTAGE OF ECONOMICALLY ACTIVE POPULATION
COVERED BY SOCIAL SECURITY

Country	% of coverage	Country	% of coverage
Brazil	96	Guatemala	33
Cuba	93	Ecuador	23
Uruguay	81	Colombia	22
Argentina	69	Nicaragua	19
Costa Rica	68	Bolivia	18
Chile	62	Paraguay	14
Venezuela	50	Dominican	
Panama	46	Republic	14
Mexico	42	Honduras	13
Peru	37	El Salvador	12
		Haiti	2

Source: PAHO/AARP, Mid-Life and Older Women in Latin America and the Caribbean, 1989.

Table 15

WORKING POPULATION AND ITS RIGHTFUL BENEFITS
IN LATIN AMERICA

GENERAL POPULATION 1990 448 million	ECONOMICALLY ACTIVE POPULATION (35% of total population) 157 million
POPULATION NOT COVERED (40%) 179 million	WORKERS NOT COVERED 63 million
POPULATION WITH ACCESS TO HEALTH SERVICES (60%) 269 million	WORKERS WITH ACCESS TO HEALTH SERVICES 94 million

TYPE OF BENEFIT AVAILABLE TO THE POPULATION*	EAP	WORKING POPULATION 157 million
CURATIVE MEDICAL CARE	33	51
CURATIVE MEDICAL CARE AND REHABILITATION	19	29
PREVENTIVE AND CURATIVE CARE AND REHABILITATION	9	14

* The working population affiliated with social security is distributed proportionally over these three categories of benefits.

Source: Adapted from: PAHO. Workers' Health. Organization of the Health Services in Labor and Primary Health Care. Documento de Trabajo HPE/Wh/5104e.

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The data in the tables may sometimes conflict for the following reasons:

- Different sources were consulted.
- The values in a given table do not always correspond to the same year.
- The original designation in the source was used in order to avoid distortions (for example, there is information on the labor force, the active population, and, in some cases, the population of working age).
- The values correspond sometimes to workers at risk and sometimes to employed workers.
- The notion of informal worker varies depending on the source.

DATA ON STRUCTURE AND DISTRIBUTION OF THE LABOR FORCE IN LATIN AMERICA

The Latin American and Caribbean labor force is distributed over several sectors of the economy, with a significant concentration in agricultural and farming activities (30%) and trade (47%), as reflected by Table A-1.

It is expected that by the end of the century, 21% of the economically active population will be employed in the agricultural and farming sector (24 million people). This decrease may be associated with migration toward urban centers (50 million between 1950 and 1980) and the introduction of mechanization and new technologies.

Despite the fact that the agricultural sector continues to employ a significant percentage of the labor force, it is reponsible for only 12% of the gross domestic product. The income of an agricultural worker is around 28% of the corresponding average income in other sectors (1)

In all the countries an increase has been observed in the economically active population that works in the trade sector, ranging from 2% to 19% (Table A-1).

With the exception of Bolivia, Ecuador, Haiti, and Suriname, less than 10% of whose labor force is employed in the manufacturing industry, the percentage of the population working in this particular sector in all other countries of Latin America and the Caribbean ranges between 11% and 30% of the total labor force (Table A-1).

The construction sector employs 6.6% of the total active population, often including a high proportion of elderly, minor, young, sporadic, and migrant workers. Seventy-three percent of all construction workers are employed in Brazil, Mexico, and Argentina (Table A-2).

In all the countries the proportion of population working in the mining sector is small, the largest numbers being found in Ecuador (8.4%), Suriname (5%), Guyana (4.9%), and Bolivia (4.7%) (Table A-1).

Available data show that in Latin America as a whole unemployment and underemployment affect 28% of the economically active population. Unemployment is extremely high in many of the countries, affecting a relatively constant proportion of the labor force, i.e. approximately 6%. The active population without employment or with an income below the required minimum is estimated at 22% (more than half being found in rural areas) (1).

While the available manpower has increased, the number of jobs has not grown at the same pace, and this has widened the gap between the groups that are able to incorporate themselves into the modern production sector and those who remain in the informal sector.

Employment of the urban labor force in the informal sector of several Latin American countries ranges between 24% and 60%. It is not an easy task to identify the population working in the informal sector, and in most cases indirect indicators must be resorted to. For purposes of a quantitative evaluation, the informal sector may be defined as follows: (a) all people employed in households, sporadic workers, independent workers, employers, employees, workers, and families working in businesses with no more than four full-time employees; (b) all people with an income below a certain minimum, usually the official minimum wage, based on the assumption that the low-productivity activities characterizzing the informal sector generate low incomes. These two criteria are used in Table A-3.

The urban labor force employed in the informal sector is concentrated in activities such as trade, services, and manufacturing. In the last, the highest proportion works in food processing, clothing, shoes, and furniture.

It is estimated that almost 70% or 80% of the urban poor in the Latin American countries are employed in the informal sector. They generally include those with poor education, the very young, women, and the oldest members of the labor force (1).

TABLES

No. A-1 Total population and labor force by sectors of the economy in Latin America and the Caribbean.

No. A-2 Economically active population in the construction sector.

No. A-3 Employment of the urban labor force in the informal sector in selected countries.

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Table A-1

TOTAL POPULATION AND LABOR FORCE BY SECTORS OF THE ECONOMY
IN LATIN AMERICA AND THE CARIBBEAN

Country	Total population 1985	Percentage of population (ages 15-64)		Labor force by sectors (%)											
				Agriculture			Mining	Manufacturing			Construction	Trade and services			
	(thousands) a)	1960	1985 b)	1960	1981			1960	1981			1960	1981		
Argentina	30,0331	64	61	20	13			36	28		11 (1980)	44	54		
Bahamas	242				2		0.1 (1980)		7		7 (1980)		84		
Barbados	253	56	62			8 (1983)				15 (1983)	9 (1983)			67 (1983)	
Bolivia	6,371	55	53	61	50	47 (1984)	5 (1984)	18	24	9 (1984)	3 (1984)	21	26	36 (1984)	
Brazil	135,564	54	59	52	30			15	24		7 (1980)	33	46		
Colombia	28,713	50	69	51	34			19	18		3 (1980)	29	48		
Costa Rica	2,642	50	59	51	29	28 (1983)	0.4 (1983)	19	23	16 (1983)	5 (1983)	30	48	50 (1983)	
Chile	12,121	57	61	31	19	14 (1983)	2 (1983)	20	19	13 (1983)	3 (1983)	50	61	69 (1983)	
Ecuador	9,378	52	55	57	52	64 (1982)	8 (1982)	19	17	4 (1982)	11 (1982)	23	31	12 (1982)	
El Salvador	4,767	52	51	62	50	40 (1983)		17	22	14 (1983)	5 (1983)	21	27	42 (1983)	
Guatemala	7,963	51	51	67	55	58 (1985)		14	21	14 (1985)	4 (1985)	19	25	24 (1985)	
Guyana	953	48	59		25		5 (1980)		14		3 (1980)		52		
Haiti	5,922	55	56	80	74	65 (1982)	1 (1982)	6	7	6 (1982)	1 (1982)	14	19	26 (1982)	
Honduras	4,383	52	51	70	63	53 (1984)	0.4 (1984)	11	15	13 (1984)	4 (1984)	19	23	29 (1984)	
Jamaica	2,336	54	57	39	21	31 (1985)	0.8 (1985)	25	25	13 (1985)	5 (1985)	36	53	50 (1985)	
Mexico	79,376	51	56	55	38		0.9 (1980)	20	19		6 (1980)	25	37		
Nicaragua	3,272	50	51	62	43	41 (1985)	0.3 (1985)	16	20	11 (1985)	2 (1985)	22	37	46 (1985)	
Panama	2,180	52	58	51	34			14	11		7 (1980)	35	47		
Paraguay	3,693	51	56	56	44	47 (1982)	0.1 (1982)	19	20	14 (1982)	7 (1982)	25	36	32 (1982)	
Peru	19,698	52	56	52	40		1. (1980)	20	15		4 (1980)	28	40		
Dominican Republic	6,416	49	57	67	42		0.1 (1980)	12	20		3 (1980)	21	35		
Suriname	375	50	58			9 (1984)	5 (1984)			8 (1984)	3 (1984)			75 (1984)	
Trinidad and Tobago	1,185	53	62	22	10	10 (1985)	3 (1985)	34	39	11 (1985)	19 (1985)	44	51	56 (1985)	
Uruguay	3,012	64	63	21	11	17 (1982)		30	32	20 (1982)	6 (1982)	50	57	59 (1982)	
Venezuela	17,317	51	57	35	18	14 (1985)	1 (1985)	22	27	16 (1985)	9 (1985)	43	55	60 (1985)	
Cuba	9,946		66												
AVERAGE %				30			2	14			6	47			

Sources: PAHO, Health Conditions in the Americas, 1977-1980, Annex 1-2, p, 175,
World Bank, World Development Report 1983, Table 21, p, 188,
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Table A-2

ECONOMICALLY ACTIVE POPULATION IN THE CONSTRUCTION SECTOR

Country	Year	Economically active population		
		TOTAL	Construction	% total EAP
Argentina	1980	9,989,000	981,000	10.1
Cuba	1981/83	3,008,000	300,000*	10.0
Venezuela	1981	4,561,000	432,000	9.5
Costa Rica	1980	770,000	61,000	7.9
Brazil	1981	43,236,000	3,171,000	7.3
Mexico	1981	20,708,000	1,500,000	7.2
Panama	1981	548,000	30,000	5.4
Uruguay	1975	1,095,000	59,000	5.4
El Salvador	1980	1,593,000	80,000	5.0
Bolivia	1981	1,685,000	80,000	4.7
Ecuador	1981	2,808,000	134,000	4.7
Paraguay	1981	1,291,000	58,000	4.5
Nicaragua	1980	864,000	37,000	4.3
Chile	1980	3,636,000	152,000	4.2
Peru	1982	5,978,000	246,000	4.2
Guatemala	1979	2,138,000	88,000	4.1
Honduras	1981	1,124,000	34,000	3.0
Colombia	1980	8,467,000	242,000	2.9
Dominican Republic	1970	1,107,000	28,000	2.5
Haiti	1980	2,318,000	22,000	0.9
TOTAL		116,923,000	7,735,000	6.6

Source: ILO, Yearbook of Labour Statistics, Geneva, 1980, 1981, 1982, 1984.

(*) Includes the production of construction goods and materials.

Table A-3

EMPLOYMENT OF THE URBAN LABOR FORCE IN THE INFORMAL SECTOR IN SELECTED COUNTRIES, CIRCA 1974 (PERCENTAGES)

Country and city		Year of data	Criterion: Low income[a]	Criterion: Job position[b]
Brazil:	States of Rio de Janeiro and Sao Paulo	1972	24	...
Chile:	Urban total	1968	...	39
Rep. Dom.:	Sto. Domingo	1970	50	...
Ecuador:	Guayaquil and	1970	48	...
	Quito	1970	48	...
El Salvador:	San Salvador	1974	41	46
Mexico:	Federal District and State of Mexico	1970	27	...
Paraguay:	Asunción	1973	...	57
Peru:	Urban total	1970	...	60
Venezuela:	Urban total	1974	...	44
	Caracas	1974	...	40

Source: ILO/PREALC, Informal Sector - Operation and Policies, 1978.

a) LOW INCOME CRITERION: Domestic workers, casual workers and workers in small or family-run businesses

b) JOB POSITION CRITERION: Persons with an income below an established minimum, usually the basic wage

INDICATORS AND BREADTH OF WORKERS' HEALTH COVERAGE

The definition of coverage will differ depending on whether the perspective is that the Ministries of Health and Labor, the social security institutions, or enterprises or any other workplace. These differences have to do with the right to health care, the type of benefits (extent of coverage), and the comprehensiveness of health care.

For purposes of social security, the working population to be covered is determined by law, while the right to coverage is based on the different contributions made by the government, the employer, and the worker.

The Ministries of Health are legally responsible for the health of the general population. Coverage, which in theory is universal, is a right. However, it depends, among other things, on: (a) the inability of workers to pay for health care or to become part of a social security system, and (b) the availability of health services and the possibility of access thereto in terms of geography and hours of operation. In most countries the occupational health facilities come under special units that are located in the capital and major cities, with almost no participation on the part of the peripheral health services.

For the Ministries of Labor, coverage has implications in terms of legal right. The working population to be covered corresponds to the entire country, which, as in the case of the Ministries of Health, theoretically means universal coverage.

The right to care through occupational health services at the workplace (provided by the employer) is usually stipulated in the rules and regulations of the different countries. It varies depending on the size of the establishment, but it is usually compulsory for businesses with 100, 500, and more workers, depending on the country. Generally speaking, this does not apply to medium and small businesses, which represent approximately 98% of all establishments and employ 65% of the working population.

With regard to breadth of coverage, there are also differences between institutions and countries.

For the Ministries of Health, the breadth (number of workers served) and depth (range and type of benefits) of the health services provided to workers goes hand in hand with the existence of health services in the immediate surroundings of the workplace, the availability of resources and time, the level of manpower training, the incorporation of occupational health actions into the general health services, and the participation of social agents such as employees and workers.

In the social security institutions, there is a direct association between the extension of coverage and economic activity, degree of industrialization, and ability to pay the respective constributions. Coverage is higher for urban salaried workers and in most cases extremely low for agricultural, independent, construction, household, and minor workers, while it is practically zero for temporary and informal workers. In addition, coverage is generally limited to the country's capital and main cities. Social security institutions in the various countries differ in terms of the financial benefits they provide in cases of illness, maternity, or permanent disability of insured workers, because benefits are based on income levels and the period over which contributions have been paid. There are also differences regarding benefits for occupational injuries, which depend not only on the aspects already mentioned but also on the legal definition of occupational accidents and occupational diseases, and the degree of disability produced by them, their classification, as well as the recognition of occupational diseases as such by legislation. Generally speaking, social security concentrates its actions on curative medical services, labor-related medical/legal aspects, secondary prevention, and, in some cases, rehabilitation, reassignment, and retraining of workers. In practice, only the sick worker who subscribes to the system has access to social security benefits.

With regard to the comprehensiveness of workers' health care, the Ministries of Health emphasize promotion, prevention, and assistance, including sanitary conditions and inmunization programs. In practice, however, the number of worker groups having access to this comprehensive health care is very limited.

The Ministries of Labor orient their initiatives primarily in terms of legislation and inspection of the workplace. In practice, however, the limited resources available do not allow either for adequate surveillance or for actions conducive to acceptance and enforcement of what has been legislated. Several of the Ministries of Labor have offices concerned with work safety and hygiene which have a range of functions (sometimes including even occupational medicine) and give advice and usually handle requests from labor unions and workers.

In the United States and Canada, there are institutes that specialize in workers' health and contribute to research and education. They provide assistance in the preparation of standards and regulations, collaborate with the sectors responsible for inspection of the workplace, and promote collaboration with information and training centers. The cooperation of these institutes has made it possible to train a number of Latin American experts and has facilitated the formulation of rules and regulations as well as the dissemination of information in other countries on the continent. Their ability to cooperate with developing countries, where PAHO may come to play an important role, could be increased.

There are institutes specialized in workers' health in five of the Latin American countries. According to their statutes, it is their duty to perform research, advisory, and educational functions. Their sphere of action, however, is often limited by scarce resources.

Workers' occupational health services in business enterprises take action in the area of industrial safety, medical care, and first aid. In practice, they do not always live up to their preventive responsibilities, which by law is their primary objective. Unfortunately, sometimes they are used as a means of supervising workers and controlling absenteeism.

DATA ON OCCUPATIONAL DISEASES IN LATIN AMERICA

The results from a review of epidemiological studies, highlights of which are presented in the following paragraphs, bear out the magnitude and importance of occupational diseases.

1. Respiratory Diseases

Silicosis. It occurs mainly in individuals who work in mines and quarries, on construction sites, in the ceramics and metallurgy industries, and in other dust-producing activities. The working population at risk in Latin America and the Caribbean is estimated at 8.5 million. The data from the Regional Seminar on Silicosis (La Paz, Bolivia, 1967) indicate a prevalence of this disease in Bolivia, Chile, and Peru of 5,200 cases, most of them associated with mining. More recent data from Bolivia indicate that the prevalence of silicosis in 28,760 mine workers studied was 22.1%, and the problem was frequently compounded by tuberculosis (1). In the mines of Bolivia there were more than 7,000 compensated cases of silicosis, and prevalence was 7.6% (2). In Peru, 45,175 workers were examined between 1949 and 1970 and 1,837 cases of silicosis were recorded, for a prevalence of 4.06% (3).

Studies conducted in Colombia on 9,349 mine and quarry workers between 1971 and 1980 revealed a 20.1% prevalence of silicosis, and in 14,208 workers engaged in manufacturing activities the prevalence was 10.3% (4). A series of other studies, carried out in coal mines by the Colombia Ministry of Health, showed a 10.5% prevalence of silicosis among the 267 workers studied in 1965 and a 16% prevalence among the 200 miners studied in 1984. In addition, in 1987, PAHO-supported research on 650 workers from 40 mines revealed a prevalence of 37%. At the seminar "Health of Mine Workers in the Andean Region," held in Lima on 12-16 October 1987, prevalence levels ranging from 6% to 50% were reported. The consensus was that at least 20% of the mine workers in the Andean countries exhibited respiratory alterations (5). In Chile a total of 1,510 cases of silicosis were reported between 1977 and 1984, with prevalence ranging between 0.62% and 4.14% (6). An epidemiological study conducted in southeastern Brazil in 1978 estimated that there were between 25,000 and 30,000 cases of silicosis in the country. It also pointed to the fact that the epidemiological pattern of this disease in highly industrialized countries was toward fewer new cases, whereas a increased tendency toward the appearance of new cases was observed in newly industrialized countries (7). A study of the silicosis situation in Venezuela, conducted in 1981, revealed a prevalence of 14% among quarry workers, 8% for those working in the pottery and porcelain industry, 15% for glass-workers, and 20% for gold miners (1).

Byssinosis. In the United States, this disease, which progresses to an advanced stage of chronic bronchitis and emphysema, has completely disabled 30,000 workers either retired from or currently working in cotton mills. A study carried out in the textile industry in Colombia indicated a prevalence of 28% for byssinosis among the 191 workers exposed and the 60 examined (2).

Hypersensitivity pneumonitis. In Colombia, the dust from crushed sugarcane (bagasse) has affected 12.1% of the workers exposed to it (2). Among the main causes for these conditions are spore fungi, particularly thermophilic actinomycetes.

Asbestosis. The inhalation of asbestos fibers in sufficiently large quantities produces asbestosis and also mesothelioma and other types of pulmonary cancer. Among 1,117 individuals working with and exposed to insulating material for 10 years, Selikoff found that 10% were suffering from asbestosis and 1% had pleural plaques. These values increased to 44% and 94% for asbestosis and 10% and 58% for pleural plaques after 20 and 40 years of exposure, respectively (8). In Brazil the number of people exposed to asbestos on the job is estimated at 21,000. Estimates in Colombia point to 15,000 individuals either associated with or previously exposed to the substance. In Mexico, approximately 5,000 workers are employed in the asbestos-cement industry and registered with the Mexican Social Security Institute. According to Selikoff, for each worker employed in the manufacture of asbestos products there may be five people who use these products or suffer exposure while handling them. In Latin America, asbestos is mined in Brazil (with deposits in several states and a yearly production exceeding 150,000 tons), Colombia (with a production of approximately 12,000 tons annually), Argentina, and Mexico. Currently, most Latin American countries use asbestos in the production of goods made of asbestos-cement (9). A study of the asbestos-cement industry conducted in Colombia showed a prevalence of 25% for asbestosis among 337 workers examined from a group of 744 exposed workers (10). Another study conducted in three companies that make asbestos-cement products and employ approximately 700 workers revealed a prevalence of 16.3% for asbestosis among 86 workers examined (11).

2. Neurotoxic Alterations

Lead absorption and poisoning. A prospective study conducted in Peru over a 10-year period, during which a total of 1,100 exposed mine workers were observed and an average of 696 were examined every six months, yielded the following results: the blood lead level exceeded 60 micrograms per 100 g of blood in 2% of those examined; hemoglobin values were below 15 g per liter in 10.1%; and urinary corproporphyrin levels were at 500 mg per liter or higher in 3.7% of the workers examined (12). In Colombia, research conducted on 90 workers employed in the manufacture of batteries, 18.9% of whom had been exposed to inorganic lead for a period of 10 or more years, yielded the following results: lead levels

of 70 micrograms per 100 g or higher in 40% of the workers, and values indicative of dangerous levels of poisoning and absorption in 56.4%; abnormal doses of urinary aminolevulinic delta acid (urinary ALA) in 75.6%; abnormal urinary coproporphyrin values in 48.2%; hemoglobin concentration below 14.5 g per liter in 14.4%; abnormal basophylic erythrocyte granules in 52.2%, and reduced motor neurotransmission in 47.7% of the workers (13).

Mercury poisoning. In Nicaragua, 56 cases of mercury poisoning (37%) were diagnosed among 152 exposed individuals in 1983 (2). A study conducted in Brazil on 120 dentists revealed levels exceeding 10 micrograms of mercury per liter of urine in 40% and levels of over 50 micrograms per liter of urine in 1.6%. Statistically significant differences were also found in the urinary excretion of proteins and sodium (14). Studies have been carried out in Venezuela that reveal the presence of congenital malformations in the children of odontological personnel.

Pesticide poisoning. Of the total volume of active ingredients of pesticides consumed on the American continent, 40% is used in the countries of Latin America and the Caribbean (approximately 350 million kg). In 1982, Brazil, Mexico, Colombia, and Argentina accounted for more than 90% of the subregional pesticide consumption. In 1973, WHO estimated the number of world annual pesticide poisonings at more than 500,000 a year, with a probable case-fatality rate of 1%. According to other sources, it is estimated that each year there are approximately 375,000 cases of acute human pesticide poisoning and 10,000 deaths in developing countries--one case per minute and one death per hour (15). Between 1978 and 1984, 20 cases of accidental pesticide poisoning were reported for different groups in Mexico, 15 of them leading to death; 26 of 226 intoxicated persons died, for a case-fatality rate of 11.5% (16). A study conducted in Brazil between 1967 and 1979 detected 3,455 cases of pesticide poisoning, with 208 deaths (case-fatality rate of 5.7%) (17). In 1981, 6,200 cases of poisoning were reported, representing 5.6% of a group of agricultural workers (2). Epidemiological surveillance conducted in 1982 and 1983 in Campiñas on 1,378 agricultural and industrial workers revealed reduced cholinesterase levels in 19% of the workers (18). Between 1981 and 1987, 14,871 cases of poisoning (2,125 per year) were reported in Central America (Costa Rica, Guatemala, El Salvador, and Nicaragua), 77% of these in Guatemala and El Salvador alone. In Guatemala the case-fatality rate was 3.2% (19).

3. Occupational Dermatoses

A preliminary study of industrial dermatoses, carried out in Sao Paulo in 1955, indicated that out of 2,138 workers examined, 221 suffered from skin conditions and 73 of these cases were work-related (33% of the cases, or 3.5% of all workers examined) (1). In 1984, Brazil reported prevalences ranging from 17% to 86% for the exposed working population. In Colombia, 1983 data revealed contact dermatitis in 17.7% of workers

exposed to allergenic substances in different industries (2). A study of construction workers conducted in Lima, Peru, revealed a prevalence of 22% among 100 workers examined in a population of 600 who had been exposed (20).

4. Noise-Induced Hearing Loss

Hearing loss from exposure to noise is a major occupational health problem in almost all the countries. Its importance comes from the high prevalence of dangerous noise levels in most branches of industry, as well as the fact that it causes permanent disability in a significant proportion of workers exposed to extremely loud noises. In Ecuador, it was reported in 1982 that 23% of 40,000 exposed workers suffered from a hearing loss of more than 30dB (A) (2).

5. Combined Exposure

In the Latin American and Caribbean countries almost no information is available on synergetic or maximization phenomena that might occur as a result of exposure to several physical, chemical, biological, and psychosocial occupational risk factors at the same time.

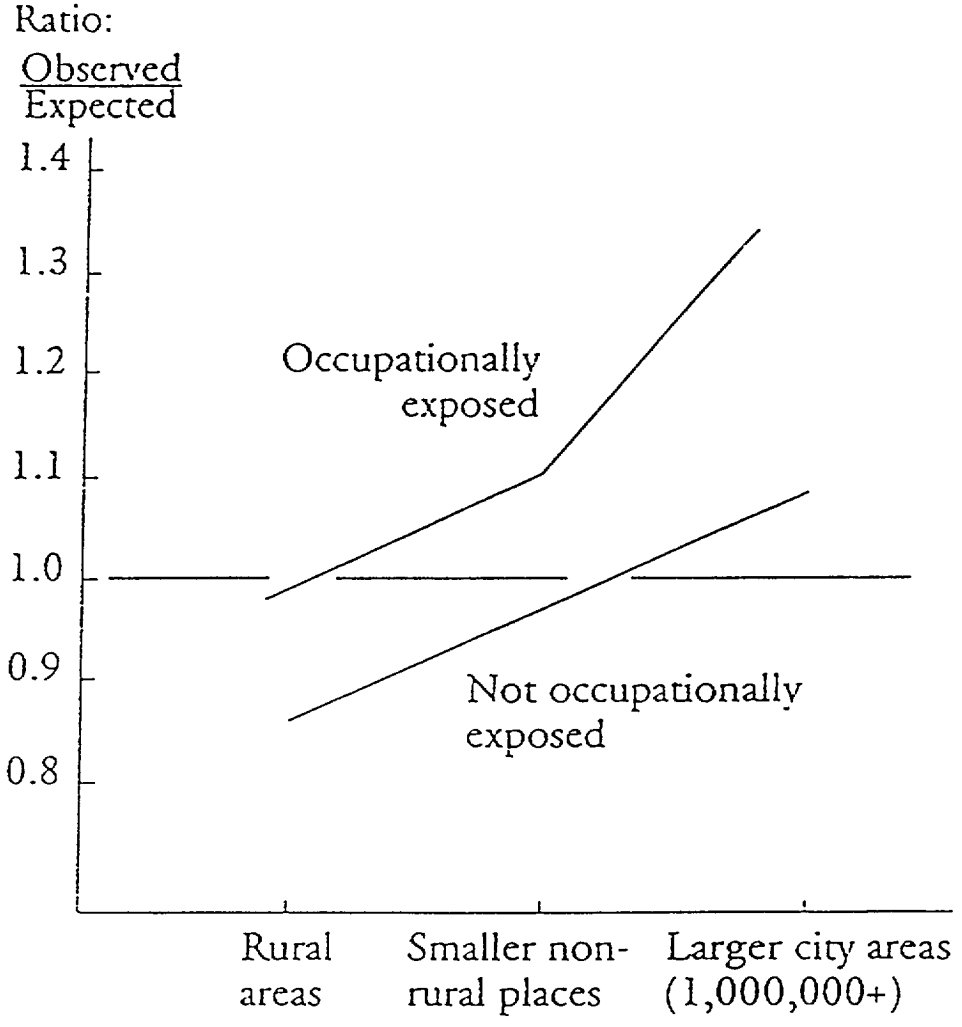
These conditions frequently occur in small establishments that have no physical separation between different work areas and limited division of labor.

6. Work-Related Cancer

It has been observed that in some occupations the incidence of malignant tumors is higher than in the general population. For example, neoplasms are nine times more common among workers employed in coke oven plants. It has been confirmed that health personnel handling and administering cytotoxins develop neoplasms. It has also been verified that tumors of the oropharynx are more common in teachers and singers. Figure 1 illustrates the difference in the occurrence of pulmonary cancer between individuals who are occupationally exposed and those who are not. There are long lists of cancerigenic substances that have been proven to cause cancer or are suspected of doing so, relative to the total number of chemical substances studied. Experimental studies on carcinogenicity in laboratory animals may make it necessary to review epidemiological studies conducted in human subjects, which show an incidence of work-related cancers of 5% to 12%--figures that are probably underestimated.

FIGURE 1

Lung-cancer deaths: US data 1959-65
(Adjusted for age and smoking)



Source: Kaoch & Schneiderman (1987)

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OCCUPATIONAL HEALTH FUNCTIONS ASSIGNED TO GOVERNMENT INSTITUTIONS AND OTHER PROGRAMS

The Ministries of Health are responsible for any functions relating to the following:

- Actions pertaining to curative medical care (medical assistance) directed toward the general population, including workers.
- Standardization: participation in the development of regulations and standards and the drafting of bills for the improvement of working and health conditions.
- Surveillance and control: surveillance of workplaces and control of occupational health services in businesses.
- Assessment of the working environment.
- Medical control.
- Care in cases of occupational pathology.
- Education.
- Research.

The Ministries of Labor are responsible for the following functions:

- Standardization.
- Inspection of workplaces and monitoring of compliance with legislation.
- Investigation of occupational accidents.
- Medico-legal certification.
- Education.
- Assessment of the working environment.

Social security institutions have the following functions with regard to the working population affiliated with them:

- Delivery of medical services for common illnesses, maternity, occupational accidents and diseases.

- Financial benefits and compensation for disability, old age, and death.

- Inspection of workplaces.

- Education.

- Research on occupational accidents and gathering of related statistics.

- Standardization.

- Rehabilitation.

- Assessment of the working environment and study of job conditions.

- Some of these institutions are also involved in preventive aspects.

Universities have the following functions:

- Undergraduate courses on occupational health and the disciplines that relate to it: occupational medicine, occupational hygiene, industrial safety, ergonomics, occupational nursing.

- Postgraduate formation of experts in the various branches of occupational health.

- Development of teaching programs that involve research and practical application.

Occupational health services in businesses are responsible for all functions assigned to them under ILO Recommendation 171 and Convention 161, national legislation, and collective labor agreements.

The occupational health programs of the Ministries of Labor and the social security institutions operate independently of the health services under the Ministries of Health. This makes it difficult to interrelate with the health system and sometimes leads to conflicts over jurisdiction, duplication of efforts, and underutilization of resources.

executive committee of the directing council

PAN AMERICAN HEALTH ORGANIZATION

working party of the regional committee

WORLD HEALTH ORGANIZATION

105th Meeting
Washington, D.C.
June 1990

Provisional Agenda Item 4.8

CE105/8, Corrig. (Eng.)
21 June 1990

WORKER'S HEALTH

Corrigendum*

CONTENTS

Table 5
Title should read: "Number of deaths from accidents, and mortality rates."

Table 9
Title should read: "Mortality from occupational accidents reported per 1,000,000 inhabitants in the economically active population, by country, circa 1985."

SECTION 1.5

Add at the end of the paragraph the bibliographical reference "(17)."

SECTION 3.2

First paragraph, sixth line:
Should read: "...on the working population, the alterations of the health of the workers also affects..."

Fourth paragraph, fourth line:
Should read: "...about 4% of the gross national product and 10% of the developing countries."

SECTION 4.1

Third paragraph, fifth and sixth lines:
Should read: "...represents 35% of the total, the estimate as of 1990 comes to 157 million..."

Fourth paragraph, third line:
Change: "30.2%" for "29.9%"

Fourth paragraph, seventh line:
Change: "...has increased by 12.2% over the figure for 1950..." to "...has tripled since 1950..."

* This corrigendum includes corrections to names and figures omitted or mistyped, as well as changes in some figures to bring the data more up to date, mainly as a result of the Subregional Meeting on the Workers' Health Situation in the Andean Area, held in Lima, Peru, from 16 to 22 May 1990.

SECTION 4.3.1 Fourth paragraph, third and fourth lines:
Should read: "...2,593,910 occupational accidents in 1986, with 3,610 deaths and 46,725,700 days of work lost (Yearbook of Labour Statistics, 1988, ILO).

SECTION 4.3.3 Paragraph a):
Add at the end of the first paragraph the bibliographical reference "(18)."

SECTION 4.3.3 Paragraph d), fourth line:
Should read: "...are the musculoskeletal affections that..."

SECTION 4.3.4 Title should read: "Gaps in Knowledge and Incomplete Assessment of Health and Occupational Exposure Conditions"

TABLE 2

Line 17 should read:

Peru 88	7,205,500	4,713,610**	1,883,907**

Line 22 should read:

Total	139,790,120	97,555,071 (70.1%)	41,627,066 (29.9%)

Include in the Source:
** 1985

TABLE 4

Line 2 should read:

Bolivia	89	75,300

Column 3 should read:
Total 5,050,644

Column 4, lines 1 to 14, should read:

Argentina	1.8	Guatemala	4.7
Bolivia	3.7	Haiti	6.5
Brazil	4.4	Honduras	6.5
Colombia	11.4	Mexico	4.7
Costa Rica	2.3	Panama	1.8
Ecuador	2.7	Paraguay	4.4
El Salvador	5.4	Peru	2.3

TABLE 8

Line 11 should read:

Peru	85	6,597,517	6,748	10.2

Line 19 should read:

Total	102,345,899	1,431,249	139.8

TABLE 9

Title:
Change "10,000" to "1,000,000"
Line 13 should read:

Peru	85	6,597,517	82	12.4

ANNEX III,
SECTION 2

First paragraph, seventh line:
Change "500 milligrams" for "500 micrograms."
Twelfth line:
Change "56.4%" to "56.7%."

Fourteenth line:
Change "48.2%" to "42.2%."

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Include:

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