

---

# SURINAME

## GENERAL SITUATION AND TRENDS

### Socioeconomic, Political, and Demographic Overview

Suriname is located on the northeast coast of South America, and covers 163,820 km<sup>2</sup>. In the north, it borders the Atlantic Ocean, in the east, south, and west it borders French Guiana, Brazil, and Guyana. The country's topography encompasses a narrow coastal plain that extends from east to west, a savanna belt, and a highland tropical rainforest that borders Brazil.

Suriname also is divided into urban, rural, and the Interior areas, in terms of population and economic activity. The urban area comprises the capital city of Paramaribo and parts of Wanica district, and has relatively dense population and an economy based on commerce, services, and industry. The rural area, which includes portions of the coast and the savanna belt, has agriculture, fishing, and bauxite mining as the main economic activities. The Interior, comprising about 80% of the country, is sparsely populated by tribal communities who depend on hunting, fishing, and slash-and-burn agriculture. Forestry, gold mining, and tourism operations also are conducted in the Interior.

The country is divided into 10 administrative districts that are governed through the Ministry of Regional Development, and each district is divided into "ressorts." Each of the country's 62 "ressorts" has its own council. The National Assembly has legislative power in Suriname and consists of 51 members who are elected for a period of five years. The President, who is chosen by the Assembly, has executive power.

The ethnic composition of Suriname's population is 35% Creole, 35% East Indian, 16% Indonesian, 8% Maroon or Bushnegro, 3% Amerindian, 2% Chinese, and 1% European, Lebanese, and others. The main religions are Christianity (42%), Hinduism, (27%), and Islam (20%).

During the 1980s, the country experienced political and economic problems as a result of falling bauxite and alu-

minum prices and the suspension of development aid from the Kingdom of the Netherlands. The 1986–1992 period was marked by war in the Interior, with civilian rule being re-established in 1992. During this period, the population suffered the decay and destruction of the infrastructure. The health sector was affected by a shrinking financial base, lack of investments in and maintenance of facilities and equipment, a scarcity of drugs and reagents, and the departure of trained public health professionals, medical specialists, and registered nurses.

Inflation was 44% in 1992, 143% in 1993, 368% in 1994, and 236% in 1995. The situation improved after the Government instituted structural economic adjustment programs, which resulted in economic and monetary stability and economic growth of 4% in real terms in 1996. The Government had a surplus of cash, made possible by the rise in aluminum prices and the success of a direct tax collection system. The Central Bank intervened, building up currency and gold reserves, and controlling the exchange rate (from a level of Sf 600 to about Sf 400 per U.S. dollar in 1996). The prospects for increased revenue are limited, but a 15% value-added tax was planned for 1997.

Suriname's economy continues to depend on the bauxite sector. Gold mining activities are growing but they also bring about social and public health disruptions such as increased crime and violence, prostitution, drug abuse, and sexually transmitted diseases. Tensions exist between prospectors and villagers, who see creeks turned into mud streams and their access to ancestral lands limited. Development of the timber sector is a source of debate in parliament and the media. Investors applied for timber concessions of 2 million hectares, but environmental concerns delayed decisions.

Suriname was admitted to CARICOM in July 1995, but to participate in the market, it must produce competitive goods. During the country's 15 years of crisis, the deterioration of the infrastructure has hindered attempts to increase production and exports. Rice production, a major source of income,

suffers from inadequate infrastructure to limit climatic effects of heavy rainfall and drought. High proportions of domestic goods are imported, and less than 1% of the land is dedicated to food production.

Although the macroeconomic situation has improved, living conditions and the health situation have not. Inflation was accompanied by imbalances in income distribution: 70% of the population was living under the poverty line in 1993. The Government structural adjustment resulted in job losses. Salaried workers, government transfer recipients, and pensioners were the hardest hit. The average real wage fell by 65% between 1990 and 1993. Wages for unskilled jobs decreased to less than US\$ 10/month in 1994.

The structural adjustment program was discontinued in 1996, and emphasis placed on "empowerment of the people." Other planned adjustments, however, such as the value-added tax and tariffs for hospitals and utilities that reflect real costs of the services, could affect the majority of the population.

There have been no data on poverty since 1993, and little is known about the informal sector of the economy. The Warwick Institute concluded in 1992 that living standards were still reasonable because of general accessibility of basic services and income sources in the informal sector. Data showed a decrease of jobs in the formal sector in the 1980s that continued during the 1992–1995 period, when they declined by 4%, to 87,282 jobs. The public sector accounted for 40% of formal employment in 1994. Unemployment was estimated at 33% of the economically active population. In 1990–1994, household surveys that considered the informal sectors in Paramaribo and Wanica showed that unemployment declined from 16% in 1990 to 11% in 1994. Between 32% and 35% of the working population (depending on the season) were women. Of those working less than 15 hours per week, between 67% and 81% were female.

Many women started businesses in recent years, and the Ministry of Labor supports them with 22 day-care centers provided through the Foundation for Management of Day-Care Centers. The Government is creating opportunities for their participation in the political process and strengthening their organizations.

It is recognized that one-parent households (usually headed by women) suffer more from poverty. Of 80,000 persons receiving an allowance from the Ministry of Social Affairs and Housing, 60%–65% are women. Groups such as refugees, the elderly, the handicapped, and those in certain urban areas and the Interior are also living under extremely poor circumstances.

About 7,000 refugees returned to the Interior in 1992, but they still lack adequate housing and public services in their tribal lands. Many schools and health centers were rebuilt in 1995 and 1996, but recovery of other infrastructure in the Interior is hampered by logistical and financial problems. Ser-

vices such as police and vital statistics have not been restored. Armed miners and drug traffickers threaten safety, while malaria and other diseases endanger health. Consequently, many refugees moved to Paramaribo, joining the 13,000 displaced persons already there, and further straining the housing and infrastructure.

Hyperinflation and structural adjustments resulted in decreasing government expenditures in the areas of health care and social protection. While expenses rose from Sf 2.7 million in 1980 to Sf 175 million in 1995, this represents a decline in expenditures from US\$ 93 million to US\$ 2.2 million.

There are government and nongovernmental programs to strengthen social protection through improvements in health care, welfare services, education, and housing and special subsidies for people living below the poverty line. However, trained personnel to manage these programs are lacking. Of the 39,000 government workers in 1994, 67% had attained only primary education; 33%, secondary education; and only 4% had higher education.

To protect the health status of the population, the Government formulated the Policy Paper 1996, which aims to provide material and social support on a needs basis to individuals and groups in vulnerable socioeconomic situations, and ultimately to enable target groups to become self-sufficient. The Ministry of Social Affairs and Housing provides the existing system of supports, which includes cash transfers to the elderly and to poor families, child allowances (covering 27,659 mothers and 64,000 children in 1994), and free medical care for the poor (about 25% of the population). A system providing subsidized packages of commodities was set up to safeguard the availability of foods and a basic nutritional status, as well as to stabilize prices and ensure equitable distribution of limited goods. Today, there are 130,000 recipients of these packages, including households and institutions. The system will be phased out, providing cash payments amounting to about US\$ 37 each, an amount that is insufficient to meet the cost of living of the elderly and the poor.

The operational cost of the Ministry of Social Affairs and Housing was US\$ 17 million in 1996 and US\$ 51 million in 1997. There is a need for more programs to protect vulnerable groups, but the size and composition of the target groups are not known. Research institutions should be engaged in efforts to improve the availability of statistical information on these groups.

The Vital Statistics Bureau estimated a population of 423,400 in 1996, 70% living in Paramaribo (222,800) and Wanica (72,400) districts on 0.4% of the land. The population increased through 1971; thereafter, growth rates slowed and some years even showed a decrease. Birth rates decreased to their lowest levels of 20.2 per 1,000 in 1994 and 20.7 in 1995. From 1972 to 1996, emigration to the Netherlands was a determinant of population dynamics. However, since 1994, it

lost its primary role and growth now depends mostly on the balance between births and deaths. In 1994, 2,836 people emigrated, and 1,716 did in 1995, after rules for traveling to the Netherlands were tightened. Legal immigration, mostly from the Netherlands, Guyana, and the Far East accounted for nearly 2,300 people annually from 1989 to 1991, decreasing to 1,350 in 1994–1995.

Fertility rates declined from 134.8 per 1,000 women aged 15–44 in 1982 to 90.9 in 1991. Factors contributing to this trend are high use of contraceptives, abortion, and emigration. There is also a lack of reliable data from the Interior, where fertility rates are higher.

### Mortality and Morbidity Profile

The crude mortality rate fluctuated between 7.3 per 1,000 and 6.2 per 1,000 in the 1986–1996 period. Life expectancy at birth continued to be relatively low, with the latest figures estimated at 68.8 years for males and females combined. Figures on death rates by sex are not available.

In the past 15 years, approximately 85% of deaths were medically certified. This declined to 70% in 1992, 66% in 1993, and 59% in 1994, because of untimely reports made by physicians. The epidemiology unit of the Ministry of Health searched records in the largest hospitals in Paramaribo to find missing certificates, yielding an increase in identified deaths to 85% in 1992, 84% in 1993, and 77% in 1994. Incomplete mortality statistics are also a result of certificates describing the cause of death by vague symptoms or as “unknown.” On average, about 15% of medical death certificates are in the category of unspecified diseases, the majority of which cite “unknown” or “old age” as cause of death.

Infant mortality in the 1990–1994 period fluctuated from 19.5 deaths per 1,000 live births in 1993 to 25.1 deaths in 1994. Perinatal mortality ranged from 18.6 in 1990 to 32.9 in 1992, remaining around that level in 1993 and 1994. This increase was attributed to underreporting of stillbirths prior to 1992. The maternal mortality rate was low in 1990 (1.1 per 100,000 live births) and fluctuated over the 1991–1994 period between 6.4 and 12.2. Again, underreporting is considered the main cause of year-to-year variations.

In the 1992–1994 period, the leading causes of death were hypertension and heart disease, accounting for 17% of all deaths (1,167); cerebrovascular accidents, 11% (758 deaths); malignant neoplasms, 9% (601); accidents and trauma, 8% (520); gastroenteritis, 5% (377); conditions originating in the perinatal period, 4% (294); diabetes mellitus, 4% (279); pneumonia and influenza, 3% (177); suicide, 2% (130); and cirrhosis of the liver, 2% (123). The most significant trends were: a decline from 274 suicides in the 1983–1985 period to 130 in the 1992–1994 period (pesticides were the most commonly

used method, followed by hanging); a decrease in deaths due to accidents and trauma from 733 in the 1989–1991 period to 520 in 1992–1994; and an increase in deaths due to gastroenteritis from 280 in 1989–1991 to 377 in 1992–1994.

From 1994 to 1996, the Bureau of Public Health, the Regional Health Service, the Medical Mission, and several hospitals undertook to improve their health information systems. The basis for a national system is in place: morbidity data are collected in all care institutions, but are not analyzed. Standardization of definitions and procedures for comparisons is needed.

An important source of information on morbidity is the registration system for patient visits to Regional Health Service polyclinics. Reasons for visits are not standardized, so comparability is questionable, but data provide ethnic, environmental, or service utilization categories. The system shows percentages of visits to Regional Health Service polyclinics attributed to groups of causes in 1993 in urban and rural areas. Where Creole populations predominated, 9% of visits were related to upper-respiratory infections, 12% to hypertension, and 8% to diabetes mellitus. In contrast, where East Indians and Indonesians were in the majority, 14%–17% of visits were due to upper-respiratory infections, 7%–9% to hypertension, and 4%–6% to diabetes mellitus. Differences in visits for asthma and emphysema by area of influence were noted. Inner-city Regional Health Service polyclinics reported them in 0.1%–0.6% of the visits; in contrast, rural polyclinics reported them in 5% of visits. At the Medical Mission polyclinics in the Interior, 8% of visits were for upper-respiratory infections, 5% for malaria, 3% for diarrhea, 1% for accidents, and 0.2% for urethral discharge among males. In the Academic Hospital, the only facility with a 24-hour emergency medicine department, about 8% of cases were related to traffic accidents, other types of accidents accounted for 39%–44% of cases, and 40% were classified as “drop-ins,” or patients with non-emergency complaints. The high percentage in the last category is a result of the unavailability of general practitioners outside normal working hours.

## SPECIFIC HEALTH PROBLEMS

### Analysis by Population Group

#### *Health of Children*

The number of live births per year declined from 9,835 in 1992 to 8,717 in 1995. The Medical Mission, which provides health service in the Interior, recorded 1,179 live births in that region in 1996. About 80% of deliveries take place in hospitals, the rest are attended by midwives and traditional birth attendants in the Interior.

The number of infant deaths increased from 192 in 1992 to 211 in 1994 (rates of 19.5 per 1,000 live births and 25.1, respectively). Data were not computed for the Interior, but before the war, 20% of deaths and 10% of births occurred in the Interior each year. Perinatal mortality remained stable during the 1992–1994 period, with 32.9 deaths per 1,000 births in 1992, 31.0 in 1993, and 29.8 in 1994. An estimate calculated by the Diakonessenhuis Hospital, which cooperates with the Medical Mission in the Interior, indicated that perinatal mortality in 1994 in the Interior was 47.5 per 1,000 births, compared with the national rate of 29.8. This suggests either a higher risk of perinatal mortality in the Interior or an overrepresentation of high-risk pregnancies.

In the age group under 1 year old, the major causes of death were conditions originating in the perinatal period (284 deaths), gastroenteritis (70 deaths), congenital anomalies (43 deaths), malnutrition (34 deaths), and pneumonia (22 deaths), representing 75% of 604 deaths. In the 1988–1990 period, the annual mean mortality rate due to diarrhea was 5.7 per 1,000 births, compared with 2.6 for 1992–1994.

In 1996, the Diakonessenhuis Hospital reported low birth-weight in 12% of 1,710 live births.

In 1993, the General Statistics Bureau estimated the 1–4-year-old population to be 37,400 (9% of the total), based on the 1980 census data on births, deaths, immigration, and emigration.

There were 149 deaths among 1–4-year-olds in the 1992–1994 period, with 44 in 1992, 58 in 1993, and 47 in 1994, resulting in specific death rates of 1.1 per 1,000 in 1992 and 1.3 in 1993. The leading causes of deaths in the 1992–1994 period were gastroenteritis (40 cases), accidents and trauma (16), malnutrition (10), and pneumonia (10), accounting for 50% of deaths. The annual mean mortality due to gastroenteritis was 23.3 per 100,000 in the 1988–1990 period, and was estimated to be 35.6 for 1992–1994. In the 1992–1994 period, accidents and trauma caused an average yearly mortality rate of 14.3 per 100,000. The yearly mean mortality rates for pneumonia were 20.9 and 8.9 in the 1988–1990 and 1992–1994 periods, respectively.

The 1993 population of 5–14-year-olds was estimated by the General Statistics Bureau to be 89,200, 22.1% of the total. There were 127 deaths in this age group between 1992 and 1994. The leading causes of death were accidents and trauma (54 cases), gastroenteritis (8), and meningitis (5), representing more than 50% of deaths in this group. Four girls in the age group committed suicide. In the 1988–1990 period, annual mean mortality due to accidental trauma was 14.1 per 100,000, with boys outnumbering girls 1.5 to 1. In 1992–1994, the rate was 20.2 per 100,000, with a boy-to-girl ratio of 1.4:1.

Hospitalizations of malnourished children increased from 307 in 1992–1993 to 355 in 1994–1995. This also represents a

3.5-fold increase with respect to 1988–1989. In 1993, most malnutrition-related hospitalizations in s'Lands Hospital affected infants of 6–9 months. In 1994, an increase in hospitalizations involved a majority of 1–2-year-olds. The 1–2-year-olds appeared more vulnerable than infants, who could benefit from breast-feeding. Milk was rationed in this period, with only pregnant women, parents with children under 5 years old, and the elderly allowed to buy a weekly ration of 5 liters at the only milk factory.

A 1994 study on the health status of former refugees in Marowijne district showed that 17% of 278 children aged 0 to 6 years were malnourished (97% chronically), but none of the 0–6-month-old infants were. In 1995, an unpublished study at a clinic for children under 5 years old in a rural village south of Paramaribo (populated mostly by Indonesians and East Indians) found more than 25% of children with a weight-for-age below the third percentile of the United States National Center for Health Statistics (NCHS) standard, while a 1989 study reported 8%.

Acute malnutrition increased during the 1980s in primary school children in Paramaribo. In 1994, a study in Paramaribo among 1,871 schoolchildren aged 4–11 found that 13% of boys had a weight-for-age below the third percentile, twice that of girls (7%). Wasting (weight-for-height below percentile 3 of standard) was the same for boys and girls, with an overall prevalence of 16%. A similar finding was made in 1989 (18%).

#### *Health of Adolescents and Adults*

The General Statistics Bureau estimated the 1993 population of 15–44-year-olds to be 199,400 (49% of the total), with 101,200 males and 98,200 females. A total of 1,192 deaths were registered in this age group during 1992–1994. The leading causes of death were accidents and trauma, with 20% of all deaths (233 cases); hypertension and heart disease with 9% (106); and malignant neoplasms with 6% (70). More male (64%) than female deaths were recorded. The pattern of deaths by accidents and trauma and malignant neoplasms differed by sex—24% and 4% for males, and 12% and 10% for females, respectively. An important trend was a decrease in deaths due to accidents, trauma, and suicides among females, from 88 in 1989–1991 to 51 in 1992–1994. There were 21 deaths in this category in the 1986–1988 period, and 34 in 1983–1985. No reasons for this steep decrease in 1989–1991 were readily found.

Between 1981 and 1990, maternal mortality rates fluctuated between 7 and 9 per 10,000 live births. These rates continued to vary from 8.8 in 1991, 12.2 in 1992, 6.4 in 1993, and 8.7 in 1994. Underreporting played an important role in these fluctuations. According to one study, 42 maternal deaths oc-

curred in 1991 and 1992, a maternal mortality rate of 22.4, or 3.5 times higher than the official figures. Postpartum hemorrhage and pregnancy-induced hypertension were the most frequent causes of death, accounting for 29. Lack of transport and blood transfusion facilities were determinants in these unnecessary deaths. A study of pregnant women in 1992 found that half were anemic (hemoglobin < 7 mmol/l).

The total fertility rate fell from 7.3 per woman in the 1950s to 2.9 in 1990. Global fertility rates dropped from 129.4 per 1,000 women aged 15–44 in 1985 to 90.9 in 1991. A national survey indicated differences in global fertility rates by ethnic group; they were 240 for Bushnegroes, 140 for Indonesians, 100 for East Indians, and 90 for Creoles.

In 1988, 1,500 of the 9,094 births (17%) occurred in mothers under 20 years old. The Diakonessenhuis Hospital reported in 1994 that 10% of births were to women under age 20. Between January and August 1994, 622 teenagers visited Stichting Lobi (the family planning foundation) for a pregnancy test, and 15% were pregnant. Figures from s'Lands Hospital showed that out of 262 abortions performed there, 40 (15%) were for women under age 20. It was estimated that trained personnel attended 80% of births in 1994; the average number of prenatal visits per pregnancy was six.

In 1992, a contraceptive prevalence survey done in a sample of women aged 15–44 found that 8% of the women knew nothing about contraceptives, 58% knew four or more methods, and 38% were current contraceptive users. Of the women sampled, 27% were married, 20% were in common-law unions, 25% in visiting partner, and 28% were single. More East Indian (74%) and Indonesian (58%) women were married, while more Creoles (58%) and Bushnegroes (47%) were in visiting unions. The stated order of preference for different contraceptive methods was the pill (54% of women), the condom (23%), tubal ligation (9%, mostly women over age 34), injectable forms (8%), and the IUD (5%, mostly women over age 25). However, the pill was the most frequently used method with 68% of users; followed by tubal ligation with 12%; the condom, 10%; injectable forms, 4%; and the IUD, 3%. Contraceptive use was uneven across social groups, but higher among older women and Indonesians, and lower among adolescents, Bushnegroes, and Amerindians. Bushnegro and Amerindian women were at higher risk than other ethnic groups with respect to age of first intercourse, age of first pregnancy, number of live births, and level of contraceptive use. Seventy percent of women between 15 and 19 years old who had partners did not use a contraceptive method at the time of the survey, and 59% of all adolescents who had been pregnant stated their pregnancies were unplanned.

A survey among students attending a vocational school showed that while 62% of sexually active students did not use contraceptives, most stated they did not want to get pregnant. In 1992, a survey by Stichting Lobi among women of child-

bearing age showed that 48% used contraceptives; 36% made the decision to use them on their own, 52% decided with their partner, and in 8% of cases the man made the decision. Another Stichting Lobi survey among 900 female clients of a clinic in 1988–1989 revealed that 34% of the women had had at least one abortion before they registered for family planning. Of those younger than 20 years, 35% had had at least one abortion. Reasons for termination of pregnancy were: “young age” (27%), “wants to finish school” (15%), “spacing” (19%), “just had a child” (14%), “has no job” (10%), “family already complete” (9%), and “other” (6%).

The 1993 population of 45–64-year-olds was estimated at 24,200 males and 26,300 females. A total of 1,661 deaths were recorded in this age group during the 1992–1994 period. As in previous periods, hypertension and heart disease remained the most important causes of death with 382 cases (23% of deaths), followed by malignant neoplasms with 231 deaths (14%), cerebrovascular accidents (226 or 14%), and diabetes mellitus (114 or 7%). In contrast with other age groups, accidents and trauma ranked fifth, with 97 deaths (6%).

In the 1988–1990 period, mortality rates (corrected for undercertification) among this group were 246.5 per 100,000 population for hypertension and heart disease, 113.6 for cancer, 87.9 for accidents and trauma, 81.6 for cerebrovascular accidents, and 55.9 for diabetes mellitus. In the 1992–1994 period, the uncorrected yearly average rates were an estimated 251.9 for hypertension and heart disease, 152.3 for cancer, 64.0 for accidents and trauma, 149.0 for cerebrovascular accidents, and 75.2 for diabetes mellitus. A correction factor for undercertification would increase these figures by about 20%. The increase in the number of deaths due to malignant neoplasms, cerebrovascular accidents, and diabetes may in part be a result of improved case-finding and availability of diagnosis (Pap tests and CT scan).

### *Health of the Elderly*

In 1993, it was estimated that 5% of the total population was in the 65 and older age group. There were 3,188 deaths in the 1992–1994 period, 51% (1,635) among males. The most frequent causes of death were hypertension and heart disease with 606 cases (19%), followed by cerebrovascular accidents (448 deaths, or 14%), malignant neoplasms (269 deaths, or 8%), gastroenteritis (167 deaths, or 5%), and diabetes mellitus with (137 deaths, or 4%). The proportion of deaths by group of causes was similar between males and females, except for cerebrovascular accidents, which were more frequent among females (17% of deaths) than males (12%). In contrast to causes of death in the 1989–1991 period, gastroenteritis appeared among the top five causes of death, while accidents and trauma disappeared from the top five causes.

### *Health of Refugees and Urban Poor*

Two high-risk groups include those in the Interior, especially returning refugees, and those in poor neighborhoods that serve as migrating stations between the Interior and the city.

In 1994, a study on returned refugees in Marowijne found that sanitation and housing were poor and the cost of living high. Although there were three polyclinics (including the Albina Hospital of the Regional Health Service), two auxiliary medical posts, and one private dental clinic in the area, people were largely dependent on Paramaribo for their health care. The study estimated immunization coverage to be 42% among 205 children sampled, lower than the national coverage of 71% in 1994.

Albina, the district's administrative center, had infrastructure problems, particularly with electricity and piped water services. Only Moengo and Albina had piped drinking water. In the surrounding villages, pit latrines either had no lids or were too full. River water was used for drinking, bathing, and other household purposes. Rainwater and well water were also used for drinking. Defecation took place in the woods, rivers, and creeks, and near dwellings, increasing water source contamination. Due to lack or high costs of transportation, outreach health work in the surrounding villages ceased.

Refugees were distinguished as those who returned to their traditional villages and those who settled in the areas of Moengo and Albina. Living conditions in the traditional villages were relatively better for children, since food was guaranteed and small children were always in the company of their mothers. In the semiurban Moengo and Albina areas, mothers were often working away from home, garbage was not collected, and sewage systems did not work. Theft, assault, prostitution, and drug abuse were rampant. Most food came from Paramaribo.

In 1996, the Salvation Army carried out a house survey in the poor neighborhood of Pontbuiten-East (Paramaribo). It has 824 households with a population of about 6,000, 60% under 18 years of age. Of those households participating (73%), 82% reported a monthly income below the poverty level (US\$ 100/month). Piped water was available in 75% of households, 17% at all times. In 44% of households, people did not receive at least one daily meal with vegetables and meat or fish. A bed was present in 57% of homes.

A total of 83% of the households surveyed perceived an unsatisfactory health situation, and 86% said medical services were inadequate. Thirty-five percent had state health insurance, 30% were covered by the Ministry of Social Affairs, 20% used private sources, and 8% had company arrangements. Traditional herbal medicines were used in 60% of households. The five leading perceived living condition problems, in descending order, were bad roads, bad sewer systems

and flooding, crime, lack of streetlights, and lack of running water. The lack of a polyclinic and drug abuse ranked eighth and eleventh. A day-care center was regarded as the most needed social service, followed by a market, an old people's home, a police post, and a center for battered women.

### **Analysis by Type of Disease**

#### *Communicable Diseases*

**Vector-Borne Diseases.** In 1993–1994, Suriname had a dengue epidemic, resulting in 201 confirmed cases, 109 hospitalizations, and 10 deaths. Dengue type-4 virus was isolated at that time. In 1996, another epidemic occurred with 182 hospitalizations and 1 death, but only 2 cases were confirmed. This reflects a policy whereby a confirmed diagnosis is not attempted for every suspect.

Malaria is a major public health problem that limits development of the Interior. Due to overlapping diagnostic services of the Medical Mission and the malaria control unit of the Bureau of Public Health, many cases may be counted more than once. In 1996, malaria reached unprecedented levels, with 23% positives out of 68,674 slides examined for malaria. *Plasmodium falciparum* was found in 94% of positive slides, *P. vivax* in 5%, and *P. malariae* in 1%, while mixed infections (*P. falciparum* with *P. vivax* or *P. malariae*) were seen in 15 slides. Almost one-quarter of the reported 11,059 positives seen by the Medical Mission in the Interior were children under 5 years old. In 1996, 14 malaria deaths were reported.

Malaria control activities resumed in 1993, although pre-war levels have not been attained. Government policy aims to integrate control with the regular Medical Mission health care programs. In the last quarter of 1996, the Government established a task force with extra funds for malaria control, thus increasing activities. The goal of the task force was to reduce malaria prevalence to "acceptable levels" within three months.

Schistosomiasis transmission is restricted to limited areas in the coastal zone, mainly in the district of Saramacca, 40 km west of the capital city. No recent data are available on its prevalence.

Suspected cases of leptospirosis increased at a rate of around 50% per year, from 50 in 1992 to more than 200 in 1996. However, the number of confirmed cases has remained at around 50 per year since 1991. Because of a lack of laboratory confirmation in all cases, and because some suspected cases turn out to be hepatitis-A or -B, it is not clear how significant the trend is.

**Vaccine-Preventable Diseases.** The last confirmed case of poliomyelitis was in 1982 and was vaccine-related. Six sus-

pected cases were investigated in 1992, 15 in 1994, 3 in 1995, and 4 in 1996, and in all cases the diagnosis of poliomyelitis was discarded. In the 1988–1992 period no cases of diphtheria were reported, but there were 33 reported cases of suspected pertussis in 1990, indicating the vulnerability left by low coverage. In the 1993–1996 period, no cases of diphtheria were reported, but in 1996 two suspected cases of pertussis were investigated. One case of neonatal tetanus was seen in 1988 and one in 1989, but there were no cases between 1990 and 1996. One case of tetanus was reported in 1994, no cases in 1995, and two in 1996. In 1992 there was an outbreak of rubella, with 17 suspected cases reported from July to December. In 1996, 10 confirmed and 20 suspected cases were seen. In 1994 there were 49 reported cases of mumps; in 1995, 863 cases; and in 1996, 124 cases.

The Expanded Program on Immunization began in Suriname in 1976 with the vaccination of children under 1 year of age against diphtheria, pertussis, tetanus, and poliomyelitis. After a large measles epidemic in 1980–1981, measles vaccination was included in the routine immunization schedule. Girls in the first year of grammar school receive the rubella vaccine. Since 1993 the measles, mumps, and rubella (MMR) vaccine has been given to children at 12 months of age. In 1992, the national vaccination coverage fell to 74%, and in the coastal area, the Regional Health Service achieved only 54% coverage. Reasons for low coverage were lack of DTP and polio vaccines in the country for 3 to 4 months, the breakdown of the public transport system, and the fact that more mothers were working. The immunization program was also hurt by the departure of trained staff members of the Bureau of Public Health and the Regional Health Service, the agencies responsible for EPI supervision and implementation.

In 1993 and 1994, DTP3 and OPV3 coverage rates remained low at 76% and 74%. Coverage was 85% in 1995, but the delivery system was weak, and in 1996 coverage dropped again to 79%. Measles vaccination rates were 62% in 1991 and 68% in 1992. After a special mass campaign, in which 94% of a target population of 46,000 children under age 5 were vaccinated, routine measles vaccination rates returned to the low levels of 61% in 1993, 71% in 1994, 79% in 1995, and 71% in 1996.

**AIDS and Other STDs.** The first case of AIDS was diagnosed in 1983, and as of 31 December 1996 597 cases of HIV-infection (including AIDS) had been reported. The male-to-female ratio in this group was 1.7:1. From 1992 to 1996 the percentage of new HIV/AIDS cases and of persons tested were: 7% HIV-positives of 685 tested in 1992, 5% of 1,406 in 1993, 5% of 1,394 in 1994, 4% of 1,958 in 1995, and 9% of 1,306 in 1996. Of the 80 who tested HIV-positive in 1995, 46 were men and 34 were women. About 75% of AIDS cases die within three months of diagnosis. Recently, the first AIDS

case was reported from an Amerindian village near the Brazilian border.

Reasons given for HIV-testing in 1995 were: unprotected sex (29%), clinical diagnosis (24%), request for insurance or blood transfusion (14%), for prevention prior to marriage or pregnancy (4%), for surveys (3%), HIV-positive contact (2%), perinatal HIV contact (0.5%), other (17%), and unknown (8%). The highest number of positive tests was found in the HIV-contact category (8 of 36) and in the perinatal HIV-contact category (2 of 9). Those tested by request of a third party were positive in 1 out of 274 cases (0.4%), while 1 of 52 (2%) in a survey were positive. Of 563 who tested because of having unprotected sex, 9 were positive (2%).

Syphilis reporting at the Dermatologische Dienst (the national center for the control of sexually transmitted diseases) varied in recent years, from 80 cases in 1988, to 295 in 1992, and 225 in 1995 (or 5% of all STDs). The male-to-female ratio was 0.8:1. At sentinel stations, the trend was similar: from 35 cases in 1991, to 226 in 1992, and 175 in 1996.

In the 1988–1992 period, gonorrhea cases averaged about 1,600 cases per year. In 1995 there were 2,072 cases (42% of all STDs). At sentinel stations there were 450 cases in 1991 and 1,840 in 1995.

**Other Communicable Diseases.** In February 1992 there was an outbreak of cholera near the border with French Guiana. Twelve cases were reported, of which seven were confirmed, including an 11-year-old girl who died. There was no further transmission of the disease and no cases of cholera reported in the 1993–1996 period.

The prevalence of leprosy decreased during the 1980s from 58.6 per 100,000 in 1981 to 25.8 per 100,000 population in 1989. The decline continued slowly in 1990, 1991, and 1992 with rates of 15.4, 14.1, and 12.4 per 100,000, respectively. In 1996 the rate was 11.0 per 100,000. The goal of eradicating leprosy in the year 2000 is an official policy target of the Ministry of Health.

Since 1990, the Bureau of Public Health reported between 47 and 72 cases of tuberculosis per year, fluctuating from 17.9 per 100,000 in 1990, to 14.9 per 100,000 in 1996. Experts estimated that the incidence could be between 25 and 40 per 100,000 (between 100 and 150 cases per year). An incidence rate of 35 per 100,000 was found among Surinamese in Holland. In 1995, 6 of 72 reported tuberculosis cases were HIV-positive, and in 1996, 14 of 63.

From August 1992 to February 1993 there was a country-wide epidemic of shigellosis, caused by a multiple resistant strain of *Shigella flexneri*, including a total of 107 hospitalized cases and 26 deaths. Deteriorating sanitary conditions and poor nutritional status created opportunities for shigellosis to become endemic. In 1994, 229 cases and 17 deaths were recorded, and in 1995 there were 235 cases and 12 deaths.

After the onset of the war, there was a decline in the number of typhoid fever cases reported. Incidence rates per 100,000 were 5.7, 5.6, and 6.4 in 1984, 1985, and 1986, respectively. In the 1988–1996 period the incidence rates fluctuated between 1.7 and 2.7 per 100,000.

Strongyloidiasis, ascariasis, and other parasitic helminthic infestations are major health problems, especially among young children, that can be attributed to poor excreta disposal practices. Ascariasis and other parasitic helminthic infections affect the population with prevalence rates of about 60% in the 0–14-year age group. Recent surveys in Paramaribo have found prevalence rates of about 60% in the general population. Since 1991, strongyloides have become the leading soil-transmitted helminths. The program for their control examined 5,497 fecal smears in 1995. Of these, 35% were positive for *Strongyloides stercoralis*, 27% for *Ascaris lumbricoides*, 18% for *Trichuris trichura*, and 7% for *Necator americanus*, several of them being mixed infestations.

#### *Noncommunicable Diseases and Other Health-Related Problems*

**Malignant Tumors.** In the review period, early cancer detection and data collection activities were initiated, including the cervical cancer screening program of Stichting Lobi, and the cancer registry project of the Academic Hospital.

A total of 892 malignant neoplasm cases were diagnosed between 1991 and 1993. More than 80% occurred among people 40 years and older, 59% were females, and 48% were Creoles. The predominance of Creoles could not be explained, and needs further analysis.

Cancer of the cervix (140 cases) followed by breast cancer (116 cases) were the most frequently observed malignant neoplasms among females, while prostate cancer (66 cases) and lymphoma (35 cases) were the most frequent among males. Since 1990, 45 cervical cancer cases were reported, on average, each year. Of those cases, 43% were diagnosed in the 25–44-year age group. This reflects, to some extent, the case-finding efforts of Stichting Lobi, women's groups, physicians, and pathologists, among others. Stichting Lobi made 11,532 Pap tests in 1995 and 11,893 in 1996. Between 10 and 25 women die from cervical cancer yearly.

**Violence and Crime.** According to national figures, there were 49 cases of murder and manslaughter in 1994 and 50 in 1995. There were 568 personal assaults registered in 1994 and 537 in 1995. Because of changes in procedures at the statistics unit of the Ministry of Justice, it is not possible to analyze trends.

In 1993, the Police registered 620 applications for assistance at its Juvenile Affairs Division in Paramaribo. These

cases were mainly among youths (70% were boys) between the ages of 12 and 16, who were victims of violence or sexual abuse; were runaways, school dropouts, shoplifters, or juvenile prostitutes; or were considered “unmanageable” by their parents. In 1994, 700 requests for assistance were recorded, 70% linked to children from low socioeconomic classes.

In 1993, a study based on police and hospital data revealed that 54% of police reports involved women. Twenty percent of reports involved women abused by male partners or ex-partners, violence that was often repeated. In 80% of cases of violent abuse against women, the crime took place at home. Academic Hospital emergency unit data showed that 95% of victims of sexual assault were female, and 20% were girls under 10 years of age. A total of 99 rape cases were recorded in 1994, and 108 in 1995.

Little information is available on drug use, including alcohol, but according to the Bureau for Alcohol and the District's Attorney office, illegal substance abuse among youth and drug trafficking were increasing. The police reported an increase in crimes committed to obtain money for drugs. There was anecdotal evidence of increased child prostitution in Paramaribo and the mining areas of the Interior.

**Behavioral Disorders.** Problems with mental health care are associated with the lack of community-based services for the mentally ill. Ambulatory outreach is very limited and there is only one psychiatric hospital. Care delivery is strictly centralized and mainly oriented toward tranquilizing medication and social constraint of seriously deranged patients. About 60% of inpatients at the psychiatric hospital were over 65 years of age and had been hospitalized for more than 30 years.

**Oral Health.** The Youth Dental Service Foundation has operated in Suriname since 1968 to improve dental health in the age 0–18-year age group. In 1995, they made a survey of 202 6-year-olds and 214 12-year-old schoolchildren in Paramaribo and Wanica. The 6-year-olds had an average decayed, missing, filled teeth (DMFT) index of 6.05, and 13% had flawless teeth, while the 12-year-olds had an average DMFT of 5.6. These results were consistent with a 1990 survey of the same sample.

**Environmental Health.** Piped drinking water is provided to 95% of the urban population. About 90% of urban dwellers have house connections and another 5% have easy access (faucets in the yards or on public lands). A program to bring piped water into villages in the rural areas was implemented before the war, and 47 rural systems function in the coastal area. About 70% of the rural population has piped water in the house and 20% near the house. People in the Interior depend on water from rivers and creeks for their supply.

Public water supplies use groundwater, but saline intrusion in the coastal area affects its quality. To improve quality in these areas, water from wells is mixed with water piped to Paramaribo from Republiek, 40 km to the south. Although water is not chlorinated, water pumped into the mains exceeds WHO guidelines on quality. However, in many areas piped water is not safe for drinking because of broken mains. Because pressure is often insufficient to supply individual household lines, people break the mains below ground level to secure water.

New buildings are required to install septic tanks for sewage disposal. In Paramaribo there is a functioning sewage treatment plant, and an oxidation pond for sewage disposal at the state prison. About 15% of households in Paramaribo use pit latrines and about 5% have no facilities. A neighborhood of Paramaribo had a sewage treatment system which, due to inadequate maintenance, stopped functioning in 1986–1987. This left sewage spills and, during heavy rainfall, one-third of households experience sewage flooding the house. Plans to provide 1,200 houses with septic tanks are being implemented. In rural districts, pit latrines are the dominant forms of excreta disposal.

The disposal of solid wastes is a major problem, particularly in urban areas. Garbage is dumped in a municipal open site located in a swampy area in northern Paramaribo. Because of the serious economic situation, poor garbage collection services, and lack of awareness, garbage is dumped along roads, city streets, empty lots, canals, and rivers.

The health and environmental effects of agricultural pesticides and fertilizers, hydroelectric power plants, mining, the use of insecticides in the Interior against malaria mosquitoes, and the effect of slash-and-burn cultivation in the Interior are matters of concern. Many of these issues are closely related to issues of economic development. The problem of pesticide use is compounded because aerial spraying leaves pesticide residue on roofs where people collect rainwater.

Other environmental problems receiving attention in the media are the disposal of feces from septic tanks by sanitation trucks into the Suriname river, the open mining of sand for construction, which turns large areas into lakes, and the use of mercury by gold prospectors along rivers in the Interior.

## RESPONSE OF THE HEALTH SYSTEM

### National Health Plans and Policies

The 1997–2001 Policy Paper of the Ministry of Health identified two core problems in the health care system: financing and the lack of trained personnel. The focus of the Ministry's policies for the 1997–2001 period is to stop the decline of the health care sector. Measures planned to

regulate and reorganize the system include institutionalization of a National Health Council; strengthening of management; updating health legislation; continued privatization of government hospitals, the Regional Health Service, and other institutions; and restoration of health care facilities in the Interior.

The Central Office of the Ministry of Health will be reorganized to enable it to function as a center for policy development, supervision, and coordination. The provision of services to the public will stop being a function of the Ministry of Health. Policies aimed at better cooperation among hospitals and the division of specialized functions among hospitals will be continued.

The Policy Paper gives priority to “participation of local communities, mobilization of local resources, and decentralization of health systems management.” Women will play a role as catalysts in community participation. Programs aimed at the target groups of women, children, and the working class are diarrhea control, immunization, and cervical cancer screening (conducted by Stichting Lobi). In March 1993, the National Assembly ratified the International Convention of the Rights of the Child. New legislation has been formulated to bring the laws of the land in line with this Convention.

To limit the problems of cost and accessibility of health care services, the Policy Paper states that the Government will implement “a compulsory national health insurance system for the total population, including mechanisms to regulate salaries of service providers, to control prices of drugs and other inputs, and to control the costs of intramural care.” Financial policies will focus on stopping open-ended financing of hospitals, budgeting programs, and the gradual elimination of subsidies.

Targets for health care budgeting, including the limit of government expenditure to between 6% and 8% of GNP, are addressed in the Policy Paper. Intramural care should be limited to less than 52% of the health care budget. Budgeting will put a halt to the current “open-ended” approach to financing health services.

Managerial development is a priority, for which development of information systems is an essential component. Health personnel will be strengthened by training professionals (including postgraduate training) and improvements in the remuneration of health workers (especially nurses).

Disease control programs given high priority are those against malaria; dengue; schistosomiasis and soil-transmitted helminthes; sexually transmitted diseases, including HIV-infections; leprosy; and tuberculosis. Priority is also given to the rehabilitation of the Medical Mission facilities in the Interior. The process of privatization of the Regional Health Service is ongoing, as well as changes in its organization that emphasize decentralization of management, strengthening of local health centers, and community participation.

## Organization of the Health Sector

### *Institutional Organization*

The Government is responsible for providing access to an integrated health care system. The Ministry of Health supervises health care providers based on norms and standards. The Central Office of the Ministry includes the Medical, Nursing, and Pharmacological Inspectorates; the Legal Department; the Planning Department; and a General Administrative Department. To support the Ministry's leadership and advocacy roles, a National Health Council will be established in the 1997–2001 period. The policy will give the Inspectorates more autonomy in controlling service quality.

### *Organization of Health Regulatory Activities*

Health legislation is outdated and, except for a few changes in laws regulating pharmacies, there have been only ad hoc and minor adaptations. Updating legislation is a priority, especially in the areas of strengthening the control functions of the Ministry of Health, and the establishment of a National Health Council. The Legal Department of the Ministry of Health is charged with coordinating efforts with the Ministry of Justice and the Permanent Commission on Health in the National Assembly to update health legislation and to provide a comprehensive legal framework for health systems development. This will include the formulation of new laws and regulations regarding: licensing and registration of medical and paramedical professionals; reporting communicable diseases, especially AIDS and HIV infections; the role of the Inspectorates; environmental protection; the use, advertising, and sale of alcohol, cigarettes, and other drugs; institutionalization for behavioral disorders; and the importation of drugs, reagents, and medical technologies. A revision of the "Public Morality Act" to permit the promotion of condoms and the regulation of prostitution is also a priority. There is also a need for legislation that protects drinking water resources by regulating mining activities, dumping of waste, the use of surface water, etc.

Registration and certification of physicians, midwives, and pharmacists and their assistants is regulated and supervised by the Ministry of Health. Physicians are licensed by the Ministry and need permission from the Director of Health for clinical practice. Other health professions are not recognized or regulated.

The Pharmaceutical Inspectorate enforces laws on the registration and importation of drugs and vaccines. There are no regulations regarding technologies. The Public Health Laboratory of the Bureau of Public Health is responsible for quality control of food and other products, including drinking water.

The Environmental Inspectorate of the Bureau is responsible for inspection of restaurants, food-handlers, food processing companies, and public as well as private sanitary systems, including the disposal of solid wastes and sewage.

## Health Services and Resources

### *Organization of Services for Care of the Population*

**Disease Prevention and Control.** The Bureau of Public Health is the main organization for health care and includes a health education department, an epidemiology and biostatistics department, and several programs for family health and disease control. The Bureau has about 400 employees, of whom 20 have university degrees.

The Bureau of Public Health provides information on disease distribution through its epidemiology unit, which operates a surveillance system on communicable diseases in cooperation with the Regional Health Service. The system depends on weekly reports of 27 sentinel reporting stations. Other organizations with disease control activities and health promotion are the Dermatologische Dienst of the Ministry of Health, the Veterinary Service of the Ministry of Agriculture, the so-called "Cross Associations" (nongovernmental organizations with well-baby clinics), and foundations such as Stichting Lobi and the Youth Dental Service Foundation.

The Dermatologische Dienst has the following goals: the control of STDs and HIV/AIDS; the elimination of leprosy by the year 2000 (an official policy target of the Ministry of Health); and the control of dermatological conditions such as yaws, leishmaniasis, and other communicable diseases. Services are provided through a central polyclinic in Paramaribo, the district hospital in Nickerie, and the district health center in Wonoredjo.

Each year, the Dermatologische Dienst handles 24,000 patient visits and performs 46,000 laboratory tests. Between 25% and 30% of visits are due to STDs, and only 7% have been related to leprosy. The institution offers syphilis serology for the hospitals (except the Academic Hospital), the blood transfusion service, and the Regional Health Service. It employs 3 dermatologists; 1 general physician; 18 registered nurses; 2 social workers; and 21 administrative, technical, and housekeeping personnel.

**Family Planning.** The Stichting Lobi foundation promotes family planning and the prevention of cervical cancer deaths. Priority target groups are adolescents, young adults, and inhabitants of the Interior. Stichting Lobi estimates that of 80,000 men and 84,000 women, 45% need family planning services, which would require some 470,000 rounds of the contraceptive pill and 5 million condoms per year. It currently

distributes 320,000 rounds of oral contraceptives and 550,000 condoms, or 68% and 11%, respectively, of the estimated needs. Stichting Lobi also screens women for cervical cancer, with 10,000 to 12,000 Pap tests yearly. It is planning to organize a countrywide program allowing women to have free Pap tests during a period of three years. Stichting Lobi aims to expand its services to people covered by the State Health Insurance Fund. Expenditures in 1995 were US\$ 489,783, covered by income from grants, sales, client fees, and fundraising.

**Oral Health.** The Youth Dental Service Foundation promotes dental health by providing free dental care to children 0–17 years of age. In 1996, a total of 207,516 activities were carried out, including 33,738 dental extractions. The Foundation operates a training center and 30 dental clinics in the periphery (10 located in health centers and 20 in schools). In 1996, the Foundation employed 63 dental nurses and 38 dental assistants and had a budget of US\$ 340,000, receiving an additional US\$ 500,000 from the Ministry of Health.

**Water Supply, Sewerage Systems, and Solid Waste Disposal.** The Ministry of Public Works is responsible for collection and disposal of solid wastes and construction and certification of sewage systems. The policy is to privatize garbage collection services and to set up a semi-private “Sewage Authority” to take care of sewage systems.

The Suriname Water Company and the Ministry of Natural Resources are responsible for the establishment and operation of piped drinking water networks. The Ministry of Natural Resources operates small local systems in the districts and in the Interior. The company covers Paramaribo and parts of Wanica, Nickerie, and Albina; it also serves a strip of 500 meters on both sides of the 50-km road connecting Paramaribo and the International Airport in Zandery. The provision of drinking water by the company increased to about 22,220,000 liters in 1996. The Paramaribo Water Supply Project, which started in 1994, will provide a sufficient supply of drinking water to every home in Paramaribo. Long-term policy is to have one drinking water system for the entire coastal area. The Suriname Water Company will take over rural areas that are now serviced by the Ministry of Natural Resources, including the Moengo area.

#### *Organization and Operation of Personal Health Care Services*

Approximately 89% of households are within 5 km of a polyclinic or health post and 60% use them on a regular basis. Institutions and organizations providing primary care include the Regional Health Service, the Medical Mission, private practices, polyclinics of private companies, the emergency department of the Academic Hospital, the Dermatologische Di-

enst, the Youth Dental Service Foundation, the Bureau of Medical Psychology (a department of the Bureau of Public Health), and the disease control clinics of the Bureau of Public Health.

The Regional Health Service, a semi-private, government-subsidized institution, provides health care for the poor in the coastal areas. It serves 120,000 people covered by the Ministry of Social Affairs and Housing and another 25,000 covered by the State Health Insurance Fund. It offers free service for immunizations, counseling, family planning (in cooperation with Stichting Lobi), and dental services for schools (in cooperation with the Youth Dental Service Foundation). The number of patients covered by the Ministry of Social Affairs and Housing increased from 78,448 in 1991 to 93,124 in 1995. Visits made by these patients more than doubled, from approximately 200,000 per year in the 1991–1994 period to more than 400,000 in 1995. Visits by State Health Insurance patients also doubled from 50,000 visits per year in the 1991–1994 period to more than 100,000 in 1995. It is not clear whether this increase reflects improved administrative procedures or increased utilization of services.

The Regional Health Service operates 11 health centers offering medical, pharmaceutical, and laboratory services, and clinics for children under age 5; 27 polyclinics offering medical and pharmaceutical services and clinics for children under age 5; and 19 auxiliary posts located in villages in the districts and operated by visiting doctors and nurses a few days per month. The Regional Health Service employs 55 doctors, 20 assistant-physicians, 48 nurses, 59 nursing auxiliaries, 28 nursing-assistants, 39 pharmacy assistants, 10 laboratory technicians, 15 trained midwives, and about 250 administrative and support staff. The operational costs were US\$ 2.2 million in 1996 and US\$ 3.2 million in 1997. Special projects of the Service receive financial and technical assistance from the Dutch Government and PAHO. One such project is the “Global Restructuring Project,” which involves restructuring the Regional Health Service, emphasizing decentralization of managerial authority to district health centers, and community participation through local and regional health councils. The project also covers the renovation of 32 polyclinics and personnel housing in the districts. The policy of the Regional Health Service is to reopen all polyclinics and to expand their numbers in the Commewijne River area.

The Medical Mission is a private, nonprofit organization that receives government subsidies and acts as an umbrella organization for missionary foundations. It aims to develop an affordable health care system based on the needs of the community and the promotion of health awareness. The Ministry of Health assigned the Medical Mission with the responsibility for all medical care in the Interior. The target population of the Medical Mission is 48,500 (80% Bushnegroes and 20% Amerindians). With the gold rush in the Interior, many urbanites and foreigners have entered the territory.

The Medical Mission employs 170 persons, including 4 physicians, 6 registered nurses, and 62 "health assistants." After four years of training, the health assistants play a central role in the system; they are able to recognize and treat common health problems, assist in uncomplicated deliveries, and promote disease prevention and healthy lifestyles. The Medical Mission has a coordinating office in Paramaribo and operates 45 health posts, including 6 clinics in the Interior. It maintains a logistical support system with canoes, road vehicles, airlift services provided by the Missionary Aviation Fellowship, and CB radio between clinics and the central office.

There are four general hospitals in Paramaribo and one in Nickerie. There is one psychiatric hospital. In January 1996, there were 3.1 beds per 1,000 population: 387 in Academic Hospital, 304 in s'Lands Hospital, 227 in Diakonessenhuis Hospital, 287 in St. Vincentius Hospital (a Roman Catholic hospital), and 60 in Nickerie District Hospital. In 1989, the combined occupancy rate of the four major hospitals in Paramaribo was 62%, a rate that increased slightly to 67% in 1995. The average length of hospitalization decreased from 11 days in 1989 to 10 in 1995.

The Academic Hospital supports a smaller, "dependent" hospital with 50 beds for chronically ill patients, drawing patients from the coastal area. Patients can be admitted after referral by general practitioners.

Academic Hospital is the only hospital with a department for emergency medicine. In 1994, 33,131 patients were admitted to the emergency unit and in 1996 there were 33,959 admissions. The number of deliveries at the hospital rose from 746 in 1995 to 894 in 1996. The operational costs for the hospital were about US\$ 7.4 million in 1996.

The s'Lands Hospital has several special functions. Almost one-half of all babies are delivered in this hospital (4,269 in 1995). The Mother and Child Health Department offers prenatal services and provides women with Pap tests. The hospital also performs renal dialysis (in cooperation with the Kidney Foundation). Of 8,705 patients admitted in 1995, 60% were covered by the Ministry of Social Affairs, and 24% by the State Health Insurance Fund. Operating costs for s'Lands Hospital were US\$ 3.2 million in 1996.

Diakonessenhuis Hospital has 100 beds reserved for patients of the Medical Mission; in 1996, there were 559 admissions from the Interior. In 1994, 1,385 babies were delivered at this hospital. The hospital has a policy of linking hospital with primary level services and maintains a general polyclinic that is open to the public until 11 p.m. and on weekends. It has a department for community and home-based care to limit the duration of stay in the hospital. The hospital also established a day-care center on its premises. Diakonessenhuis Hospital operational costs in 1996 were about US\$ 2.8 million.

About 1,300 babies were born in St. Vincentius Hospital in 1992. The neonatology unit is a special feature of this hospital. In 1996, 60% of admitted patients were covered by the State Health Insurance Fund, and fewer than 8% by the Ministry of Social Affairs and Housing. The hospital had a budget of US\$ 3.7 million in 1996.

Nickerie District Hospital has an operating room, an obstetrics department, an X-ray facility, and a medical laboratory. The hospital was renovated in 1993–1996 with a loan of US\$ 8 million from the Inter-American Development Bank. The major problem faced by this hospital is the lack of medical specialists.

The s'Lands Psychiatrische Inrichting, the 300-bed psychiatric hospital, is a division of the Ministry of Health. Its facilities include a ward for crisis intervention (short-stay patients), a ward for forensic psychiatry, and a pavilion for psychogeriatric and chronic patients.

### *Inputs for Health*

The State Pharmaceutical Company is the central importer, producer, and distributor of drugs and medical supplies. It maintains 14 pharmacists and 15 pharmacies, and the Regional Health Service has 32 additional auxiliary pharmacies at its facilities. Some 2,150,000 pharmacy prescriptions were processed in 1990 and 2,525,000 in 1996. The Company sold US\$ 3.9 million worth of drugs and US\$ 740,000 in other supplies in 1996.

The Cancer Foundation developed a project to set up an orthovoltage radiotherapy unit for cancer patients and submitted it for Dutch Treaty Fund financing. The project for the provision of essential drugs will be expanded to include drugs for chemotherapy. Also on the drawing board is a project to set up a unit for angiograms in the Academic Hospital.

A program for the supply of medical equipment and consumables is being implemented with financing through the Dutch Treaty Funds. As part of the program, quality control and local production of drugs are upgraded, and standard lists are assembled for different categories of supplies. Suriname is following the essential drugs policy advocated by WHO, and has developed a national formulary. Better maintenance of medical equipment was achieved through the establishment in 1993 of a Joint Technical Unit, with the contribution of all hospitals and laboratories. With help from the Belgian Government, the infrastructure of the Joint Technical Unit is being improved.

Currently there is an arrangement for sending patients to the Netherlands for medical procedures not performed in Suriname. The State Health Insurance Foundation has paid an average of US\$ 20,000 per case (with assistance from the

Netherlands). The 1996 budget was designed for 200 such cases. The policy is to decrease this need by improving facilities in Paramaribo. Since an argon laser was installed in the Academic Hospital, patients no longer went to the Netherlands for laser treatments. The capacity for open-heart surgery will be established in cooperation with the Academic Hospital of the University of Leiden and visiting Dutch medical teams. Also needed are facilities for a heart catheterization center, the establishment of an oncology team, and decentralization of renal dialysis services.

### *Human Resources*

A 1996 study by the Planning Bureau of the Ministry of Planning and Technical Cooperation found that there are about 500 vacancies for personnel with university degrees at the central offices of Government Ministries (not including vacancies in the field). There were shortages of nurses, medical specialists, pharmacists, dentists, veterinarians, dieticians, nutritionists, physiotherapists, psychologists, pharmacy assistants, laboratory analysts, and environmental health inspectors. According to the Planning Bureau, in the past five years 33% of 567 health care professionals left the sector or the country (primarily senior nurses and medical specialists). Many professionals will retire in the next decade: 64% are 50 years or older. The lack of public health professionals able to make the necessary analyses and reports undermines the functional and leadership capacity of the Ministry of Health.

The health sector employed approximately 5,100 people in 1992, including administrative and other support personnel. About 70% were government employees. In 1996, there were 190 general practitioners, 95 medical specialists, 20 psychologists, 31 dentists, 9 veterinarians, 24 laboratory analysts, 13 physiotherapists, 14 pharmacists, 3 dieticians/nutritionists, and 81 nurses with university degrees. There were also 550 auxiliary nurses, 40 midwives, 95 pharmacy assistants, 27 X-ray technicians, and 63 dental nurses.

In 1993, 9 physicians graduated from the Medical School of the University of Suriname, 15 graduated in 1994, 8 in 1995, and 22 in 1996, after finishing a seven-year curriculum. The Central School of Nursing and the intramural training programs of the Academic Hospital and St. Vincentius Hospital are training nurses and nursing auxiliaries, but the programs cannot keep up with the demand. The duration of courses is four years for registered nurses and three years for auxiliaries. In 1996, 80 enrolled for the registered nurse course and 135 for the nurse auxiliary course. The Nursing School has a new study program for a bachelor's degree in Nursing. There are plans to shift responsibility for the Nursing School from the Ministry of Health to the Ministry of Education. By ending

the requirement that applicants be working in a hospital, the numbers of applicants should increase.

The Youth Dental Service Foundation has a training program for dental nurses. Of the more than 120 dental nurses trained since 1976 (about 80% of all students), only 63 were still working for the Foundation in 1997. After a temporary interruption in 1995–1996, the program admitted 12 new trainees.

The Medical Mission has a special training program for health assistants, and Stichting Lobi has one for midwives. About 10 to 15 registered nursing students are admitted each year. The duration of the course is three years. The Bureau of Public Health also has a training program for environmental inspectors.

The University of Suriname introduced a public health curriculum in 1992–1993 to strengthen the primary health care orientation of medical students. A "skills lab" was started in 1995 to improve teaching methods. The University also initiated a course for physiotherapists in 1996 with 15 students.

### *Expenditures and Sectoral Financing*

In the 1991–1996 period, the Ministry of Health accounted for 4% of government expenditures. In 1996, government expenditures were US\$ 210 million. More than one-half of Ministry of Health disbursements were for personnel, while other general costs accounted for 25%. Total national spending on health care (government and private combined) was estimated at US\$ 40 million in 1996, 8% of GDP. Of this amount, the Government financed at least 62%. The Ministry of Health (including the Central Office, Bureau of Public Health, Dermatologische Dienst, and the psychiatric hospital) received US\$ 8,128,100. Subsidies to the Medical Mission amounted to US\$ 985,500; to the Youth Dental Service Foundation, US\$ 492,600; and to the Central Nursing School, US\$ 123,200. Compensation of financial shortfalls for the Regional Health Service cost US\$ 1,283,300; for s'Lands Hospital, US\$ 206,900; for Academic Hospital, US\$ 194,600; and for Nickerie District Hospital, US\$ 51,700. The Ministry of Social Affairs and Housing received US\$ 8,620,700 and the Ministry of Finance received US\$ 13,546,800 (for the State Health Insurance Fund). Private sector expenditures on health care amounted to US\$ 18,472,300.

### *External Technical and Financial Cooperation*

The major international and bilateral partners in the development of the health sector are the Governments of the Netherlands and Belgium, PAHO, United Nations Children's Fund (UNICEF), and IDB.

Some of the most important projects developed through technical and financial cooperation include: (1) reorganization of the Bureau of Public Health, using Dutch Treaty Funds; (2) the Drugs and Medical Supplies Project, financed through Dutch Treaty Funds; (3) restructuring the Regional Health Service, financed through Dutch Treaty Funds and PAHO; (4) the Malaria Control Program financed by Dutch

Treaty Funds and PAHO; (5) treatment of patients overseas; (6) the National AIDS Program, a project supported by the European Union and PAHO; (7) the Tuberculosis Control Program, supported by PAHO; (8) the National Immunization Program, supported by PAHO and UNICEF; and (9) the maternal and child health program supported by PAHO and UNICEF.