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# BELIZE

## GENERAL SITUATION AND TRENDS

### Socioeconomic, Political, and Demographic Overview

**B**elize is bordered by Mexico on the north, Guatemala on the west and south, and the Caribbean Sea on the east. Its land area is 22,700 km<sup>2</sup>. The northern and southern coasts are plains, with mangrove swamps. The Maya Mountains are in south central Belize and occupy much of the country. Some 65% of the country is classified as forest, 36% of which is set aside as reserves and protected areas. The climate is subtropical, with temperatures ranging from 10°C to 35°C; annual mean rainfall ranges from 150 mm to 2,650 mm. Belize is the only English-speaking country in Central America, although Spanish is also widely spoken; it is more similar to Caribbean countries in culture, politics, and economy.

Belize is a sovereign state governed by a parliamentary democracy based on the British system. The Head of State is Queen Elizabeth II, who is represented by a Governor General. The Prime Minister and Cabinet constitute the executive branch, and a 29-member elected House of Representatives and an 8-member appointed Senate form the bicameral legislature. The Cabinet members are appointed by the Governor General on the advice of the Prime Minister.

The country is divided into six administrative districts: Corozal, Orange Walk, Belize, Cayo, Stann Creek, and Toledo. Each district is administered by a locally elected board, and a mayor and village council govern at the village level. Although the capital was moved to Belmopan in 1981, Belize City remains the commercial center with almost a quarter of the population.

### *Population*

The 1991 census put Belize's population at 189,392, while the estimate for 1996 was 222,000. Over 42% of residents

were under the age of 15, and 61% are under 25 years of age, with similar proportions of women and men. In 1991, the rural population surpassed the urban due to an influx of immigrants. According to reports from the Office of the United Nations High Commissioner for Refugees, the migrant population was approximately 30,000, or 14% of the total; the 1995 National Survey conducted by the Central Statistics Office indicated that immigrants comprised 12% of the population.

According to the census, the Mestizo ethnic group (persons of mixed heritage descended from Spanish colonists and indigenous peoples) represented 44% and the Creole (of mixed African and European heritage) represented 30% of the population. Other ethnic groups include the Maya (12%), Garífuna (7%), East Indian (4%), and other smaller groups. Between 1984 and 1996 the Government promoted immigration, mainly targeted at Asian immigrants. In 1996, Belizeans of Asian origin comprised 2.5% of the population.

The annual population growth rate in 1996 was 2.5% compared to 2.6% in 1991. The total fertility rate was estimated at 4.6 children per woman, showing a steady downward trend from 7 children per woman in the 1960s. In 1991, estimated life expectancy at birth was 69.9 years for males and 74.1 years for females. A 1996 estimate showed the crude death rate to be 4.3 deaths per 1,000 population.

### *Economic Situation*

The country has an economy primarily based on agriculture and services. A stable currency is one of the attractions for foreign investment. The 1996 per capita income was US\$ 2,308 compared to US\$ 1,664 in 1989, a growth of 39%. The gross domestic product (GDP) increased by 67% from US\$ 306 million in 1989 to US\$ 512 million in 1996, while the population grew by 21%. The GDP had a real growth rate of 1.5% in 1996, compared to 3.8% in 1995. Although inflation is

low, it increased in 1996. The consumer price index was 2.8% in 1995 and 6.4% in 1996, averaging 3.2% the previous five years.

The economy is dominated by agricultural exports including sugar cane, citrus concentrate, bananas, and marine products, which made up 77% of exports in 1996. Belize also relies on forestry, fishing, and mining, which, combined with agriculture, account for 22% of the GDP.

Recent trends have increased the trade deficit, putting pressure on net foreign reserves. A lack of public savings, expansion of fixed investments, declining foreign assistance, and rising levels of external debt increased government deficits. Although the Government reduced expenditure, it has not succeeded in generating the resources needed to expand the infrastructure base. Reduced Government spending has resulted in cuts in health services for rural communities and curtailed services in health posts and mobile clinics. The Government is reorganizing its tax structure, which will affect the poor. The Social Investment Fund, containing US\$ 10 million, was created to promote productive and social interventions in highly underprivileged population groups, and should help to alleviate poverty.

### *Social Situation*

A 1995 Poverty Assessment Report by the Caribbean Development Bank, the Ministry of Economic Development, and the Central Statistics Office concluded that 33% of Belizeans were poor (unable to meet expenditures on basic food and non-food items), while 13% were very poor (unable to meet expenses on basic food items). Of heads of households, 24% of males and 31% of females were considered poor. In Toledo district, where a majority of the Maya live, 58% of the population was poor; 41% in Cayo District, and 25% of Orange Walk, Corozal, Belize, and Stann Creek Districts were classified as poor.

The 1991 census indicated that the majority of households consist of five or more persons. The 1996 Labour Force Survey showed a drop to 4.5 persons per household. Over 20% of households in the country comprise less than two persons. Average household size in the rural areas was larger than in urban areas. Nationwide, 22% of households were headed by females, except in Belize District, where the figure was as high as 33%. The census also indicated that 63% of houses had two or fewer bedrooms. Approximately 66% of all houses were either owned or being bought, while over 20% were rented. Houses were more often owned in the rural than in urban areas.

Of the estimated 1996 population, the survey indicated that 65,025 persons were employed and 10,425 unemployed, which gives an unemployment rate of 13.8%, a 1.3% increase

from 1995. Unemployment was highest in Belize District (18.4%), followed by Stann Creek (15.4%), Cayo (15.2%), Toledo (14.3%), Orange Walk (6.6%), and Corozal (5.8%). Unskilled labor occupied 63% of the workers in 1996. Of the employed force, 22% had not completed primary school, 47% had a primary school education, and 15% had completed high school. Mennonites had the highest employment rate (99.3%) and the Garifuna had the lowest (75.7%). The Creole and Mestizo comprised 75% of the unemployed force. Around 71% of the employed were males. In the 14–19-year-old age group, 32.2% of males and 45.5% of females were unemployed.

It is estimated that 100% of the urban and 69% of the rural population had a safe and adequate water supply. Belize District had the highest coverage levels (91%) and Toledo, the lowest (71%). The other districts have coverage levels between 82% and 85%. Nationwide, 39% of the population had adequate sanitation facilities; the figures were 59% in urban and 22% in rural areas. Solid waste management is a problem throughout Belize; this is exacerbated by drainage problems in Belize District.

Primary school attendance is free and compulsory up to age 14, but approximately 36% of children do not complete it. Census data were used to assess the basic literacy rate, considering those who completed up to standard five or beyond of the formal education system to be literate. Using this definition, the basic literacy rate was 70%. In 1996, the Central Statistics Office added a literacy survey module to the Labour Force Survey in order to assess functional literacy (measured by specific reading and comprehension skills) as well as basic literacy nationwide. The survey showed basic literacy to be 75.1%, although only 42.4% of the population 10–65 years old were functionally literate. According to the census, 48.6% of primary schoolteachers were fully trained; these figures were 81% in Belize District, compared to only 27% in Toledo.

Although few statistics are available by sex, some provide a profile of the status of women in the society. Women are classified as poorer than men. One of 29 seats in the House of Representatives is held by a woman. Only 2.4% of females complete pre-university education. Senior management positions are held by 1.9% of women; 22% are employed in unskilled jobs, and 18% are unemployed. Over half of pregnant women (51.7%) suffer from iron deficiency anemia. Since the passage of the Domestic Violence Act in 1993, the number of protection orders granted has increased by over 300%.

### **Mortality Profile**

Life expectancy at birth increased from 68.4 years in 1980 to 71.8 years in 1991. In 1980, females had 2.2 more years of

life expectancy than males (69.8 vs. 67.6), a gap that widened to 4.8 years by 1991 (74.7 vs. 69.9). The infant mortality rate showed a decreasing trend, from 31.5 deaths per 1,000 live births in 1993 to 26.0 in 1996. Maternal mortality fluctuated from 16.1 in 1993 (10 deaths) to 8.2 (5 deaths) in 1995, increasing to 13.9 (9 deaths) in 1996. The leading causes of maternal deaths were hemorrhage, pulmonary embolism, eclampsia, and abortion.

The crude mortality rate remained around 4 deaths per 1,000 population from 1993 to 1996 (4.0, 3.6, 4.3, and 4.0 for those years, respectively). The mean mortality rate among males (4.6) was 40% higher than that of females (3.4). Belize District reported the highest rate (6.0), while Cayo had the lowest (2.5).

Mortality was dominated by noncommunicable and chronic causes during the 1992–1996 period. Heart diseases were the leading cause for both males and females. An average of 20% of deaths were due to heart diseases, with a decreasing trend from 22% in 1993 to 16% in 1996. Respiratory diseases were the second most frequent cause (10%–14% of deaths), except in 1994 when it ranked fourth (7%). Cerebrovascular diseases and malignant neoplasms accounted for 7%–9% of deaths, but neoplasms were more frequent as a cause of death among females (8%–11%). The assessment of neoplasms is limited by the lack of oncological services in Belize. External causes (excluding road traffic accidents, homicides, and suicides) accounted for 4%–5% of deaths, ranking fifth. Among males, road traffic accidents were an increasing cause of death, while among females it did not figure in the leading causes. Suicides increased from 1 case in 1994 to 11 cases in 1995, totaling 20 cases over the period. Nineteen of the suicides were males.

The leading causes of morbidity, as measured by the number of hospitalizations, were respiratory diseases, particularly in males. The second cause of morbidity in males was intestinal disease. Among females, complications of pregnancy ranked first, respiratory diseases, second, and abortion, third. The high prevalence of anemia in pregnant women (51.7% at prenatal clinics) aggravates the outcome of pregnancy complications. Orange Walk, Stann Creek, and Toledo districts reported respiratory diseases as leading causes of hospital morbidity during the period. In contrast, Cayo District reported complications of pregnancy as the leading cause, followed by respiratory diseases. In Orange Walk District, “other injuries” was the second cause of morbidity among males, while complications of pregnancy ranked second among females. In Belize District, abortion was the second cause of hospital morbidity among females, while “other injuries” ranked second among males for the years 1993 and 1996. Malaria ranked among the five leading causes of hospital morbidity in Stann Creek District.

## SPECIFIC HEALTH PROBLEMS

### Analysis by Population Group

#### *Health of Children*

**Infant Health.** In children under 1 year old, mortality rate decreased by 20% from 31.5 deaths per 1,000 live births in 1993 to 26 in 1996. Corozal and Cayo Districts had the lowest rates (13.8 and 17.9), while Orange Walk, Stann Creek, and Toledo Districts had the highest (32.6, 33.2, and 30.1, respectively). The decreasing trend observed nationally was seen in Corozal, Cayo, and Stann Creek Districts. The rate increased in Toledo from 29.4 in 1993 to 52.1 in 1994, and decreased to 30.1 in 1996 (no known explanation exists for this change). It increased in Belize District in 1995 and 1996. More males (62.1%) than females died during this period.

The main cause of infant mortality during the 1993–1996 period was “conditions originating during the perinatal period” (36% of deaths), increasing from 29% in 1993 to 39% in 1996. Asphyxia was the most important cause of death among conditions originating in the perinatal period (32%), followed by low birthweight (28%), and infections (11%). Nearly 62% of perinatal deaths occurred in males; 68% of asphyxia cases were males. The second cause of infant mortality was infectious diseases (24% of deaths); respiratory diseases were responsible for 12% of deaths. The frequency decreased from 25% in 1993 to 19% in 1995, but increased again to 31% in 1996. Congenital diseases caused 10% of deaths in the 1993–1996 period, decreasing from 16% in 1994 to 9% in 1996.

Infectious diseases prevailed in the morbidity pattern among infants, accounting for 50% of hospitalizations in the 1993–1996 period; 57% were males. Admissions due to infectious diseases decreased from 64% in 1993 to 40% in 1996. Respiratory and intestinal diseases were responsible for 63% and 32% of admissions, respectively. Nationally, hospitalizations per 1,000 live births increased from 104 in 1993 to 216 in 1994, and remained stable thereafter. Hospitalizations were most frequent in Toledo (289), followed by Belize District (261); Corozal had the lowest number (74).

A low proportion of babies, approximately 46%, were exclusively breast-fed to four months of age, with no change in trend. This rate reflects the fact that hospitals are not complying with the requirements for “baby-friendly hospital” certification.

While infant mortality declined during the 1992–1996 period, morbidity remains associated with quality of care, in particular in terms of basic health services and prevention of infections.

**Health in Early Childhood.** Among children in the 1–4-year age group, mortality rates increased from 9.0 deaths per 10,000 persons in 1993 to 12.1 in 1996. External causes, in-

cluding road traffic accidents, accounted for the highest proportion of deaths (24%). This figure increased from 21% in 1993 to 33% in 1996. The second leading cause was infectious diseases, accounting for 22% of deaths; respiratory diseases accounted for 65% of these deaths. No differences were found in rates between males and females.

Morbidity based on hospitalizations showed that 35% were due to respiratory diseases, followed by intestinal diseases (18%), and external causes (12%). There were no differences found between males and females in hospitalization due to these causes.

Undernutrition measured by weight-for-age deficit (Z score  $-2.0$ ) occurred in 6% of children attending health clinics in 1992 at the national level, more than twice the number expected. In Toledo, a survey showed that 16% of children were undernourished in 1992 and 18% in 1994. The study suggested that while breast-feeding practice and duration were appropriate, undernutrition was caused by poor weaning practices related to food quality and quantity. Also associated with undernutrition were the poor quality of drinking water, household sanitation, and hygiene practices.

**Health in Late Childhood.** Children in the 5–9-year-old group had the lowest mortality rates of all age groups at 3.3 deaths per 10,000 persons over the 1993–1995 period, with an increase to 5.5 in 1996. Mortality rates were higher in males (4.4) than in females (3.0). External causes accounted for 43% of deaths. More males (62%) died from these causes than females.

Respiratory diseases were the leading cause of morbidity in this period for both males and females, accounting for 21% of all hospitalizations. Second in rank were external causes (12%). Hospitalizations due to fractures were more frequent in males (67%) than females.

Data from a national census showed that the prevalence of growth retardation (low height-for-age) in schoolchildren in 1996 was 15%–18% in males and 13% in females. This prevalence was much higher in rural areas (23%) than in urban areas (7%) and in Mayan children (45%) than in Mestizo and other ethnic groups (18%). With the exception of Belize District (4% prevalence), the districts with the highest levels of poverty also had the highest level of growth retardation (Toledo District had a prevalence of 39%). The ethnic group most affected was the Maya (45%), and the least affected, the Creole (4%). Maya children had four times more growth retardation in Toledo District (52%) than in Belize District (12%).

### *Health of Adolescents*

The mortality rate among adolescents (10 to 19 years old) over the period averaged 6.2 deaths per 10,000 persons. Mor-

tality among males was twice as high (8.7) as females (3.6), males accounting for 72% of all deaths. External causes were the leading cause of death (37%); 80% of these deaths were in males. Belize District had the highest number of deaths due to external causes, followed by Orange Walk; Toledo District had the lowest percentage (6%).

Complications of pregnancy were the leading cause of hospitalization for adolescents in the 1993–1996 period (17%), followed by injuries and poisoning (16%). Females represented 60% of all admissions. Complications of pregnancy accounted for 42% of female admissions, while injuries and poisoning accounted for 31% among males. Fractures accounted for 37% of all injuries and poisoning, with males hospitalized in 78% of cases. Among complications of pregnancies, abortion and early labor were each responsible for 19% of the admissions; cesarean section represented 7%.

### *Health of Adults*

Among adults 20–49 years old, mortality was stable over the period, with an average rate of 2.3 deaths per 10,000 persons of this group. Mortality rates among males were higher (2.7) than for females (1.4). External causes were the leading cause, accounting for 24% of deaths, followed by heart and respiratory diseases (12% and 7%, respectively). Males represented 69% of all deaths in the age group. Road traffic accidents were responsible for 51% of externally caused deaths; 88% involved males. The highest frequency of deaths due to external causes occurred in Orange Walk, 94% in males. The frequency of deaths due to heart diseases was higher in females (17%) than males (9%).

Complications of pregnancy were the leading cause of hospitalization in this age group (29%) in the 1993–1996 period, followed by digestive disorders (8%). Females in this age group comprised 69% of hospital admissions. Complications of pregnancy were responsible for 42% of female admissions of all ages, and 37% of these cases were related to abortion. Injuries and poisoning were the leading causes of hospitalization for males (29%). Within this category, “other injuries” was the leading cause (61%), 81% occurring in males. Fractures were the second leading cause of morbidity in the injuries and poisoning group, accounting for 35% of hospitalizations.

In 1995, 51.7% of pregnant women attending health clinics were found to be anemic (hemoglobin levels below 11.0 g/dl).

Adults 50 years old and older had a mortality rate in the 1993–1996 period of 20 deaths per 10,000 persons. Rates were higher in males (20.8) than females (18.4). Heart, respiratory, cerebrovascular diseases, and neoplasms were the leading causes, accounting for more than 50% of all deaths.

Respiratory, heart, and digestive system diseases and diabetes were the leading causes of hospitalization in this age

group. Other causes for hospitalization were hypertension, cerebrovascular disease, and neoplasms. No difference was observed between male and female hospitalization patterns.

### *Workers' Health*

Approximately 29% of the total population of the country was employed in 1996, and a total of 1,522 benefit claims were filed. The majority of claims were for sickness (37%), followed by injury (19%). The leading morbidity conditions were respiratory diseases, followed by back pain and fever. Of all injury claims, 42% were due to open wounds and injuries. The highest numbers of injury claims were in Orange Walk (29%), Corozal (26%), and Stann Creek Districts (25%), districts where agro-industry is more developed. The 20–39-year age group filed 65% of all claims.

## **Analysis by Type of Disease or Health Impairment**

### *Communicable Diseases*

**Vector-Borne Diseases.** Malaria continued to be a major public health problem in Belize. The number of cases, the rise in the number of positive localities, the number of cases due to *Plasmodium falciparum*, and the percentage of cases occurring among children increased during the 1992–1994 period. A study in 1995 on the distribution of malaria showed that, in Toledo, 56% of cases occurred among children under 14 years of age. In other districts, most cases occurred in young adult males.

Although the situation improved during 1995, the malaria incidence rate continued to be high. There were 9,413 cases diagnosed in 1995, a decrease of 10% compared to 1994. Cases decreased by approximately 50% in Orange Walk and Corozal Districts. Almost 95% of cases in 1995 were due to *P. vivax*. Of the *P. falciparum* cases, 86% occurred in Stann Creek and Cayo. Cayo was the most affected district, with 40% of all cases, while Toledo reported 23% and Stann Creek, 18%. In 1996, there were 6,605 reported cases, a reduction of 30% with respect to 1995.

There were no reported cases of dengue between 1991 and 1993. In 1994, 14 cases were detected and in 1995, 107 suspected cases were registered, 9 being confirmed by laboratory. Belize does not have the capacity to conduct serological testing, but sends samples abroad for confirmation. No cases were reported for 1996.

**Cholera and Other Intestinal Diseases.** Cholera appeared in Belize in January 1992; 159 cases were reported in 1992 (mainly in Toledo District), 135 in 1993, and 26 in 1996.

Four deaths occurred during the first year of the epidemic, followed by two deaths in 1993 and two in 1996. Hospitalizations due to intestinal diseases decreased from 913 in 1994 to 593 in 1996, particularly in children 1–4 years old.

**Tuberculosis.** Mortality rates due to tuberculosis were 2.0 per 10,000 persons in 1993, 4.3 in 1994, 2.8 in 1995, and 5.4 in 1996. During the period, 232 new cases of tuberculosis were diagnosed.

**Respiratory Infections.** Respiratory diseases were the major cause of hospitalization in the 1993–1996 period, accounting for 12% of all admissions. The most common diagnoses were chronic obstructive lung disease (45%), which includes asthma, followed by pneumonia and influenza (29%). There were no differences in hospitalization between males and females. The highest morbidity rate occurred in Stann Creek (3.2 per 1,000 inhabitants), followed by Toledo (2.8), with the lowest in Corozal (1.0).

Respiratory disease was the second leading cause of death (11%). Pneumonia was the diagnosis in 69% of these deaths.

**AIDS.** Since the detection of the first AIDS case in 1986, 195 cases were reported through December 1996. There were 18 cases of AIDS in 1994, 28 in 1995, and 38 in 1996. The majority (80%) were in the 20–44-year age group. AIDS mortality was over 90%; life expectancy after developing the disease is between 18 and 24 months.

Through the end of 1996, 486 cases of HIV infection were reported by the Central Medical Laboratory, the number increasing from 60 in 1994 to 78 in 1996. The male-to-female ratio of reported HIV cases declined from 13:1 in 1989 to 1.6:1 in 1996. Transmission occurs mostly through heterosexual contact, although 27 persons with AIDS reported homosexual and bisexual activities. Eight pediatric cases have been reported, five attributed to perinatal transmission and three to blood transfusion. In 1995, the Sentinel Surveillance project showed 0.96% HIV prevalence in women attending prenatal clinics, and 0.8% prevalence in cord blood. Although the epidemic affected the entire country, Belize and Stann Creek districts reported 78% of the cases (61% and 17%, respectively). The number of HIV cases also diagnosed with tuberculosis increased to nine in 1996, compared to an average of three cases per year in the preceding period.

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

**Nutritional Diseases and Diseases of Metabolism.** Nutritional problems range from deficiency to obesity. Deficiencies in weight- and height-for-age, as well as in serum iron

and vitamin A in preschool children were present in all ethnic groups in Toledo, and in rural populations of the Maya and Mestizo in the other districts. Anemia was found among pregnant women. Data from a study conducted among adults in 1995 indicated that obesity was a problem.

Food supply in Belize is highly dependent on imports, and it is necessary to monitor imported food for iodized and fluorinated salt. The Government policy is to promote self-sufficiency in food production.

**Cardiovascular Diseases.** Cardiovascular diseases accounted for 30% of reported deaths in the 1993–1996 period. Mortality rates varied from 125.8 per 100,000 inhabitants in 1993 to 113.5 in 1996. Heart diseases were the leading cause of death for males and females, accounting for 67% of cardiovascular deaths. The highest death rate occurred in Belize District (183.0), followed by Stann Creek District (141.3); the lowest death rate was in Toledo (64.0).

Heart disease was a major cause of hospitalization among adults 50 years or older, accounting for 10% of all hospitalizations in this group. However, it did not appear among the leading causes of hospitalization in other groups. There were no sex differences in hospitalization due to heart disease. The districts with the highest hospitalization frequency due to heart diseases were Corozal and Belize, each with 13%, and the lowest was Cayo (6%).

**Malignant Tumors.** Malignant neoplasms were among the leading causes of mortality during the period, particularly in the 50 and older age group. Mortality remained stable at 34.7 deaths per 100,000 persons. No sex differences were observed. The districts with the highest number of deaths due to neoplasms in the 50 and older age group were Cayo and Orange Walk, each registering 17%; the lowest was in Toledo (7%). Neoplasms were also a leading cause of hospitalization for the age group 50 years old and older, accounting for 5% of all hospitalizations. There were no differences by sex.

**Diabetes.** Diabetes appeared among the 10 leading causes of mortality only in the 50 and older age group (88% of all diabetes deaths). The annual average number of diabetes-related deaths per year was less than 25, accounting for 2% of reported deaths in this age group. The annual average number of females (28) that died from diabetes was slightly higher than that of males (21) in this age group. Hospitalizations due to diabetes decreased from 308 in 1993 to 235 in 1996, with women accounting for 67% of admissions. Five out of six amputations in Belize are due to diabetes, and 9% of cases of blindness were related to diabetic retinopathy.

**Accidents and Violence.** External causes were among the leading causes of mortality, accounting for 9% of reported

deaths in the general population in 1993–1996; males accounted for 79% of these deaths. Road traffic accidents caused 41% of deaths in this category. The mortality rate for motor vehicle accidents increased from 10.7 per 100,000 population in 1993 to 16.7 in 1996. In men, the rate increased from 14.4 to 26.1 per 100,000 between 1993 and 1996, while in females it increased from 6.9 to 7.2.

Although suicide did not appear among the leading external causes of mortality, its frequency increased from 1 death in 1994, to 11 in 1995, and 8 in 1996; almost all suicides were males. Nearly half occurred in Corozal; 75% were in the age group 20–49 years old. Forty-two percent of suicides were by shotgun, 21% by hanging, and 15.9% by paraquat ingestion.

The Domestic Violence Act has been in effect since 1993, but documentation on domestic violence is almost nonexistent and information is not channeled to the Medical Statistics Office or other information systems. The Department of Women's Affairs is presently coordinating the development of a national five-year plan of action on domestic violence, and the Ministry of Health and Sports is coordinating the development of a national registration form for domestic violence through its Epidemiology Unit.

A 1996 study in Orange Walk identified important issues relating to domestic violence, including compromised medical response; weak networking; increased utilization and demands on the legal system; increased awareness of domestic violence coupled with stereotypical attitudes; and the need for support services (counseling, data registration, and management protocols).

**Abortion.** Although abortion did not figure among the leading causes of mortality, it is probable that some deaths due to abortion were reported as complications of pregnancy. There were 2,603 abortions reported. While hospitalizations due to abortion decreased from 7% in 1993 to 5% in 1996, abortion ranked fourth in causes of hospitalization. Twenty percent of hospitalizations related to abortion occurred in the 10–19-year age group, decreasing from 21% in 1993 to 17% in 1996.

**Mental Health.** Information on mental health is based on hospitalization at the national psychiatric hospital. Neurotic disorders and alcoholic syndrome are included in the five leading causes of hospitalization; schizophrenia and other psychoses are not.

A recent psychiatric nurse practitioners' study cited "stress and inadequate coping skills" as the leading contributing factor for psychiatric illness, followed by chemical abuse.

**Oral Health.** Oral health improved among schoolchildren, with a reduction in dental decay and gum disease. However, a recent study of 3–4-year-olds showed that 43% had dental

caries and 15% had rampant caries. The risk of caries in 4-year-olds was 1.5 times higher than in 3-year-olds. Increased fluoride use by children from 1993 to 1995 was associated with a decrease in the demand of dental services. The index for decayed, missing, and filled teeth (DMFT) in 1989 ranged 3.4 in Orange Walk to 4.7 in Cayo in schoolchildren from 6 to 12 years of age. For 12-year-olds, the index was 4.3 for the districts included in the study. There were no differences by sex. Among adults, an increased request for dental fillings, prophylaxis, and bacterial plaque removal was noted.

**Ocular Health.** Information on ocular health is limited, most of it coming from Government clinics (in Cayo, Belmopan, and Belize Districts) and the Belize Council for the Visually Impaired, a nongovernmental organization that maintains a national registry on blind persons. As of December 1996, there were 806 recorded cases of blindness, a rate of 3.6 per 1,000 inhabitants. This is below the rate of 8 per 1,000 expected in developing countries according to WHO estimates. Stann Creek and Belize districts had the highest rates (5.2 and 4.6, respectively); the other district rates ranged from 2.4 to 2.8. The most common diagnoses among blind persons were cataracts (39%), glaucoma (23%), diabetic retinopathy (9%), congenital blindness (5%), retinal blindness (5%), and others (15%). Persons age 60 and older represented 25% of all those registered as blind; by district, this age group comprised 41% of the blind in Belize, 15% in Cayo, 14% in Stann Creek, 13% in Orange Walk, 10% in Corozal, and 7% in Toledo. Hospitalizations due to eye diseases decreased from 125 in 1993 to 43 in 1996.

**Natural Disasters.** The most important natural hazards in Belize are hurricanes, fires, and floods. During 1995, a flood in the north required the evacuation of several villages, an event that reduced immunization coverage. To minimize the impact that natural or man-made disasters have on health services, simulation exercises, training, dissemination of information, and intersectoral cooperation have been carried out. Constraints in this area include the coordination and allocation of funds for disaster mitigation measures.

## RESPONSE OF THE HEALTH SYSTEM

### National Health Plans and Policies

In November 1996, the Prime Minister launched the National Health Plan 1996–2000 and the Ministry of Health started reorganization to implement the plan, focusing on the development of new programs and approaches, and decentralization. Areas of concern include information systems, health financing, health service administration, equipment

maintenance, human resource development, and institutional development and planning. The Ministry has received support from PAHO and the Inter-American Development Bank in the reform process. The policy reform project of 1993 provides policy options for implementing the National Health Plan and consolidating equity and efficiency in the health sector.

The National Health Plan provides a framework to guide the Ministry of Health and others in efforts to ensure universal access to a set of comprehensive health services of acceptable quality, through primary health care. The development of the National Health Plan has been a participatory process, promoting active involvement of different sectors in identifying priority areas and proposing solutions and desired outcomes at central and local levels.

The National Health Plan defined five programmatic areas for achieving its goals: environmental health; early childhood; late childhood and adolescence; early and late adulthood; and sports. Support services include information systems and epidemiology, health education and community participation, nutrition, development of a health facilities network (including a referral system, maintenance, laboratory, and drug supplies), physical education, and administration.

While State reform is under way, and consultative and participatory processes have won new supporters in recent years, change depends on the pace and direction of the reform. Decentralization is not uniformly accepted, and will require changes in culture and attitude. An environment conducive to democracy and community decision-making is necessary to ensure community participation.

### Organization of the Health Sector

#### *Institutional Organization*

The Government has provided health services at practically no charge over the years, including the provision of pharmaceuticals. Cost recovery mechanisms are gradually being instituted, particularly for curative care.

Health care management, centralized until recently, now allows more district autonomy in the decision-making process. In April 1997, finances were decentralized to the district level, but guidelines for budget distribution and management had not yet been established. There was progress in cooperation and coordination between the preventive community-based programs and the District Medical Officers (who usually administer the hospital and are responsible for overall health care management), but there were problems due to lack of management training at the community level.

While both public and private sectors contribute to health care, there is no clear definition of their roles or coordination.

The Ministry of Health is responsible for the design of policies and arrangements between institutions and providers, including the utilization of public hospitals by physicians and dentists for private practice.

Intersectoral cooperation is recognized as a sound approach to health and development. Multisectoral bodies such as the National Commission for Families and Children, the National Women's Commission, the Appraisal Environmental Committee, among others, exist, but their impact is compromised by a lack of effective mechanisms for intersectoral coordination and cooperation at the national level.

The Ministry of Health has embraced primary health care, and has created an infrastructure of district health teams that work toward health related goals. The teams were established to promote intersectoral and community participation in health development, but are composed mainly of health care providers. The teams have no legal authority or assigned budget with which to operate.

#### *Organization of Health Regulatory Activities*

Although specific statutes have been approved, there have been no major changes in health legislation for nearly three decades. The laws of Belize refer to medical services and institutions, public health, food and drugs, and certification and practice of health professionals. Revision of existing health legislation is an expected outcome of the health policy reform. There are no effective regulatory mechanisms, norms, or standards to enforce legislation.

The Ministry of Health is responsible for making regulations on health related issues. The Chief Medical Officer (Director of Health Services), appointed by the Governor, is responsible for executing ordinances and recommending necessary regulations to the Minister, and in cases such as control of communicable diseases has the authority to make regulations. Regulatory bodies such as the Medical Board, the Nurses and Midwives Council, and Board of Examiners of Chemist and Druggists are responsible for registering professionals in specific areas and advising the Minister on regulations concerning those categories.

Authority to prevent and control environmental pollution is contained in provisions of the Public Health Act, the Pesticide Control Act, and the Solid Waste Management Authority Act. The Environmental Protection Act of 1992 established a Department of the Environment, which is charged with enforcing provisions of the Act. Over the past five years, legislation was developed for the control of pollutants in land and water. Air quality standards for industry, traffic, and exposure to environmental tobacco smoke in public buildings are still required. The Housing Department set standards for housing ventilation.

Legislation on food safety and security is under development. Food standards and regulations based on regional references exist for most processed food, whether for internal or external markets.

The Factories Act, governing occupational health and safety in factories, no longer meets the needs of most workers. The Workers' Health Plan replaced it in the form of the Occupational Health and Safety Act, relevant to diverse working environments.

### **Health Services and Resources**

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

**Health Promotion and Education.** Belize ratified the 1994 Caribbean Charter for Health Promotion. Health education was incorporated into vertical programs, but inclusion of health promotion as a strategy was not achieved. The utilization of the mass media and community mobilization was a countrywide strategy. The establishment of local health promotion coordinators contributed significantly to the decentralization of health education and promotion. Health sector reform should ensure that the strategy continues to influence health. Major constraints are the emphasis of the budget on curative care, and the limited availability of training institutions for health educators.

**Programs for Disease Prevention and Control.** The Ministry of Health developed vertical programs in response to major communicable diseases such as vaccine-preventable diseases, malaria, dengue, rabies, tuberculosis, and AIDS and other sexually transmitted diseases. As part of the Maternal and Child Health Program, the Expanded Program on Immunization increased its coverage for targeted diseases. Between 1993 and 1995, there were major achievements in this area: the elimination of measles and the introduction of the measles, mumps and rubella vaccine. In addition, congenital rubella syndrome surveillance was initiated in 1997, and a pilot project for hepatitis-B vaccination was implemented in the Stann Creek District. The Government assumed the purchase of vaccines. To ensure coverage for targeted diseases, emphasis is given to surveillance, ongoing training, maintenance of cold chains, and regular mobile clinic outreach. The constraints are individual refusals, a vulnerable outreach program, and deficient equipment maintenance.

The vector control program of the Ministry of Health carried out systematic spraying of houses (particularly in rural areas), identified areas of infestation, and applied treatments when required. The Public Health Bureau conducted rabies vaccination and health education campaigns to encourage in-

dividuals to vaccinate domestic animals. The tuberculosis program runs a chest clinic for the prevention and control of tuberculosis cases. The productivity of the clinic decreased between 1992, when 409 patients were seen (20% with tuberculosis), and 1995 when 129 patients were seen (47% with tuberculosis).

A National AIDS Program has been in place since 1987, and it has implemented two middle-term plans within the framework of the Global Program on AIDS. Activities included public awareness campaigns, targeted outreach programs, blood safety measures, counseling, HIV testing, and the development of policies and standards. Since 1987, 100% of blood for transfusion has been screened for HIV, and its cost is assumed by the Government. Despite these efforts, attitude changes on sexual behavior are limited, stigma and discrimination persist, access to care and support is limited, and there are no defined policies and regulations for the prevention and control of HIV/AIDS. In 1996, a group of organizations and individuals from the public and private sectors established a task force to develop a national strategic plan within the framework of the new AIDS program. Building on previous experiences, the intersectoral group has focused its efforts to meet the needs of the population and those directly affected by the epidemic.

There are no programs for prevention and control of non-communicable diseases, although special services are available for priority diseases such as diabetes and hypertension. It is important to mention the contribution of certain non-governmental organizations that provide complementary care in this area, such as the Belize Council for the Visually Impaired, Belize Diabetes Association, Belize Cancer Society, the Red Cross, and the Lions Club, among others.

Despite many successes, the disease-oriented and vertical approach being used for the organization of health services delivery compromises an efficient response. The life cycle/gender approach seeks to ensure an integral focus on health for all ages, male and female. The challenge is to develop an efficient health model that is sensitive to local needs and cultural diversity.

**Workers' Health.** The largest program providing benefits to workers is the Belize Social Security Scheme, covering approximately 89% of the working population. Those not covered include people employed for less than 24 hours per week and the self-employed. The scheme does not target workers' health; rather, it provides for medical care for injuries suffered on the job only. The Social Security Sickness Benefit consists of cash payments for wages lost during illness; health care services are mainly provided by the Ministry of Health.

**Food Protection and Control.** Government policy has aimed at self-sufficiency in food production. Recent reforms

include tax exemptions for local food production and allowing producers a more competitive position in the market.

Responsibility for food safety is shared by the ministries of Health, of Agriculture and Fisheries, and of Trade and Industry. Efforts to establish a coordinating body have not yet succeeded, but steps to establish a Codex Alimentarius Commission by the public and private sectors are under way. The public sector is represented by the Ministries mentioned above, and the private sector, by the Chamber of Commerce and Better Belize Bureau. Laboratory facilities for a food safety program are limited and devoted mainly to water quality control. Food testing is done outside of the country.

**Drinking Water Services, Sewerage Systems, and Solid Waste Management.** Responsibilities for management of water sources are not clearly defined nor coordinated. Five Government Ministries and the Water and Sewerage Authority are involved in the water and sanitation sector, each undertaking partial control and managing fragmented resources with only minor regard for overall planning criteria. The Ministry of Health, through its Public Health Bureau, monitors water quality and implements rural sanitation programs. The Water and Sewerage Authority operates water systems in urban centers and sewerage systems in Belize City, Belmopan, and San Pedro Ambergris Key. Although water supply and sanitation coverage increased between 1990 and 1995, and had a positive impact on the control of waterborne diseases, there is still a shortfall of facilities in rural and urban areas. In 1995, the Government discontinued the Rural Water Supply and Sanitation Unit to streamline public service and to improve efficiency, but this affected the monitoring of rural water systems and their maintenance.

In urban communities, refuse disposal is the responsibility of the local governments. In rural communities, refuse disposal is not organized at the community level; each household is responsible for the disposal of its solid waste. When disposal methods are inadequate and cause health concerns, the Ministry of Health may intervene to ensure corrective actions. There is one hospital solid waste management system functioning in the national referral hospital; the rest of the hospitals do not have a standardized system, and bury and burn their waste in open sites.

**Epidemiological Surveillance Systems and Public Health Laboratories.** Surveillance systems exist for poliomyelitis and measles, and to control HIV and AIDS, malaria, cholera, tuberculosis, typhoid fever, and congenital rubella syndrome. These systems do not always coordinate with the Medical Statistics Unit of the Ministry of Health, and are more responsive to the vertical nature of existing programs.

Public Health Laboratory activities are supported by the Central Medical Laboratory and the Water Quality Laboratory, which both need further development.

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

The Government, through the Ministry of Health, is the main provider of health services. There are eight public hospitals, one in each district, with the exception of Cayo and Belize Districts, which each have two. Karl Heusner Memorial Hospital is the national referral hospital and serves the Belize District population with general and specialized services for primary, secondary, and some tertiary care. Rockview Hospital, located 22 miles from Belize City, is the national psychiatric hospital.

District hospitals function as primary level care facilities and provide some secondary care. There are no studies on the response capability of the health services facilities network, but Ministry of Health personnel recognize that this is an area needing improvement. Referrals are made to neighboring countries, but no standardized protocols are in place.

There are 75 public facilities functioning as health centers (40) and rural health posts (35). Health centers provide pre- and postnatal care, immunization services, growth monitoring of children under age 5, treatment for diarrhea and minor ailments, and general health education. Some specialized clinics offer services for hypertension, diabetes, tuberculosis, sexually transmitted diseases, and AIDS, also providing referrals and follow-up. There are no standardized protocols and mechanisms for referrals to district hospitals or to the national referral hospital. Each center serves 2,000 to 4,000 persons, and most also provide a mobile clinic that visits smaller and more remote villages every six weeks, accounting for 40% of the centers' service delivery.

Specialized services in mental health, maternal and child health, and dental health are provided through this public facility network. Mental health care follows a psychiatric service delivery model based on incarceration, although an outpatient clinic and psychiatric social welfare services were established and extended to the districts through monthly clinics. In 1992, a psychiatrist was hired for the Government program. Today there are two psychiatrists and nine trained psychiatric nurses providing mental health care. A community-based project was initiated in 1997 to strengthen mental health care outreach services.

The Dental Health Program has been successful through specialized clinics and school-based services.

The Maternal and Child Health Program is one of the more structured programs. Clinic attendance records from children's services show that follow-up visits manifest an increasing trend for preschoolers and a decreasing trend for children 1–4 years of age; the first visit remained stable for both age

groups. More than one-fourth of hospitalization services were for normal deliveries. The Ministry of Health does not provide contraceptives, and family planning is limited to health education during pre- and postnatal services. Belize Family Life Association, a nongovernmental organization, is the main provider of contraceptives.

The private medical sector is limited in number of providers and range of services. Only two private hospitals exist, one nonprofit hospital in Cayo District (20 beds) and a for-profit facility in Belize District (4 beds). In addition, there are 54 private clinics, 27 of which are in Belize City; Toledo District has one private clinic. The private sector is mostly limited to outpatient services. Secondary care is provided for maternity cases and simple surgeries.

Private health insurance is limited but increased rapidly during the 1990s. Many insurance companies are affiliates of large international firms and benefit packages are fashioned to cover expenses for medical care outside of Belize. Premium levels are high and out of reach for the average worker. Family coverage can cost as much as US\$ 100 monthly for a group medical policy.

Regulations that restrict the number of physicians authorized to practice privately, the proximity of higher-quality services in Mexico, low population coverage of group medical insurance, the absence of linkages between financiers and providers of health care, and the use of public hospitals by government-contracted and independent specialists to treat private inpatients are some of the structural problems influencing the underdevelopment of private practice.

Although the number of health professionals increased, particularly specialist physicians, the services provided, coverage, and productivity decreased in the public health sector in the 1993–1996 period. There are no data available on private sector productivity. According to the Medical Statistics Office, the total number of hospital discharges decreased from 19,480 in 1993 to 16,557 in 1996. Hospital occupancy rates decreased from 44% in 1993 to 37% in 1996. The total number of consultations decreased from 218,993 in 1993 to 178,016, while specialist consultations went from 19,364 in 1993 to 14,115 in 1996. Productivity indicators were as follows: 0.60 discharges/physician/day; 0.23 C-sections/obstetrician/day; 13.9 general consultations/general practitioner/day; 0.94 specialist consultations/specialist/day; 0.78 major surgeries/surgeon/day, and 0.04 emergencies/physician/day. Productivity was lower in the Karl Heusner Memorial Hospital than the average for the rest of the district hospitals.

### *Inputs for Health*

The Central Medical Laboratory is the hub of the public laboratory network. Except for Cayo, all district hospitals have

a laboratory that is administered from the central level. Quality control of private laboratories is the responsibility of the Central Medical Laboratory. The quality of services in public laboratories is compromised by staff shortages, low budgetary allocation, and waste of supplies.

Private diagnostic facilities consist of one laboratory in Belize and a radiology unit; neither is affiliated with a patient facility. Regulation of private sector diagnostic facilities does not exist. Although the Ministry of Health has radio-image diagnosis equipment, it is underutilized due to a shortage of trained personnel.

There are three main problems regarding drug management and supply in the public sector: the annual budget is too low to cover needs; procurement is ineffective, with many purchases occurring at unnecessarily high prices; the distribution system is dysfunctional and items are frequently out of stock for prolonged periods. Drug supply is a priority area being addressed by the health policy reform project. The Ministry of Health developed a Drug Formulary in 1994.

Routine maintenance of facilities is compromised because of limited budget.

The health information system suffers from limited standards for routine reporting, late reporting, lack of feedback, and shortage of staff trained in data processing and analysis. There are various vertical information systems but there is minimal coordination among them. A large amount of data is compiled and made available but not properly used for decision-making.

### *Human Resources*

The number of health personnel increased by 57% from 1976 to 1994. The 1994 health personnel survey counted 500 health workers, 465 of whom were active. Physicians, dentists and professional nurses accounted for 58% of the personnel; 33% were professional nurses, 21% were physicians, and 3% were dentists. Almost 75% of health personnel work in the public sector, the largest group being nurses (84%). The majority working in the private sector are physicians and dentists (58%). Approximately 14% of health personnel work in both the public and private sectors. Fifty-five percent of physicians working in the public sector also held jobs in the private sector. Most dentists (67%) work exclusively in private service. Community health personnel include 117 midwives and 135 traditional birth attendants; 110 have undergone some training. Other Ministry of Health staff include 14 supply clerks and a supply officer, 16 public health inspectors, 68 vector control staff, 7 health educators (two with health education training), and a network of 171 community health workers.

Belize allocates financial resources to staff the health sector at a level that is comparable to that of other countries, but

it has one of the lowest coverage of physicians and only an average coverage of nurses. Health personnel are concentrated in the metropolitan district of Belize, where more than half of the health staff is employed (60% of physicians, 54% of practical nurses, and 63.3% of professionals work at the central level), most in the Karl Heusner Memorial Hospital. Lack of infrastructure and available specialists result in low utilization of district inpatient facilities and a high level of referral to the Karl Heusner Memorial Hospital. The distribution is unequal in all districts for both physicians and nurses in rural and urban areas. Although Belize has the highest distribution rates for all categories of personnel, it has no physicians in rural areas.

### *Expenditures and Sectoral Financing*

The budget for health increased from US\$ 862,950 in 1992 to US\$ 11,035,500 in 1995. However, the health sector's share of the national budget decreased from 9% in 1992 to 8% in 1995. The relative allocation of resources showed an emphasis on curative services (74% allocated to hospitals), and within curative services, an emphasis on secondary care (28%). Only 17% of the budget was allocated to public health programs. The budget structure remained the same over the 1993–1996 period. Personnel costs consume over two-thirds of Ministry of Health expenditures (75%) and increased in recent years, while drugs and medical supplies consume 17%. Over 60% of Ministry of Health capital expenditure is covered by foreign aid, and little funding is available for routine maintenance. Inadequate resources and inefficiencies in allocation and use contribute to the deterioration of the quality and quantity of services provided by the Ministry of Health.

### *External Technical and Financial Cooperation*

International partnership contributed to health sector development and the multisectoral process, positively affecting the health status of the population. The Government emphasized building and strengthening bilateral, regional, and global relations and commitments. Since the last "Health for All" evaluation, the Ministry of Health strengthened its technical cooperation efforts within the framework of the Caribbean Cooperation in Health, the Central America Health Initiative (CAHI-III), the Binational Cooperation in Health Mexico/Belize, and the Trinational Cooperation in Health Mexico/Guatemala/Belize. Belize cooperated with nontraditional partners in health, such as the Inter-American Development Bank involvement in the health reform project.

Although legal agreements exist between agencies and the Government through the Ministry of Foreign Affairs, there

are no formal arrangements for the coordination and execution of international donor-funded technical cooperation in health and development. Coordination of international cooperation and health assistance is done on an ad-hoc basis by the Ministry of Health.

The Ministry of Health set up a planning unit in 1996 to

coordinate international assistance for health. A technical cooperation manual was developed in 1996 as part of a Ministry of Health and PAHO/WHO initiative to streamline their joint planning, execution, monitoring, and evaluation in health. UNICEF is also strengthening inter-ministerial coordination within its new program of work.