

CHAPTER THREE

BACKGROUND: THE DOMINICAN REPUBLIC AND THE HURRICANES OF AUGUST-SEPTEMBER 1979

General

The Dominican Republic occupies the eastern two-thirds of the island of Hispaniola in the Caribbean (see map next page). Haiti occupies the western third of the island. At about 19,000 square miles, it is the second largest Caribbean island nation (behind Cuba) and was the first populated by the Spaniards after Columbus' landfall. The Republic's climate is tropical (at 18° N latitude), with little temperature variation between summer and winter months. Most areas of the country receive sufficient rain for year-round crop cultivation.

The population is of mulatto African-Spanish ancestry. The indigenous Taina and Carib Indians were quickly decimated by European diseases and Spanish enslavement practices.^{1,2} After the demise of the Indians, the Spaniards imported slaves captured in West Africa and populated the island with these people to work the sugar cane plantations and mines. The miscegenation of the Spaniards and Africans formed the basis of the present racial composition of the country: Caucasians are variously estimated at between 5% and 10% of the population, with the remainder mulatto or black.

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Samuel Hazard: Santo Domingo. Past and Present: With a Glance at Hayti, New York: Harper and Brothers Publishers, 1873.

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Frank Moya Pons, Historia Colonial de Santo Domingo, Santiago: UCMM, 1977.

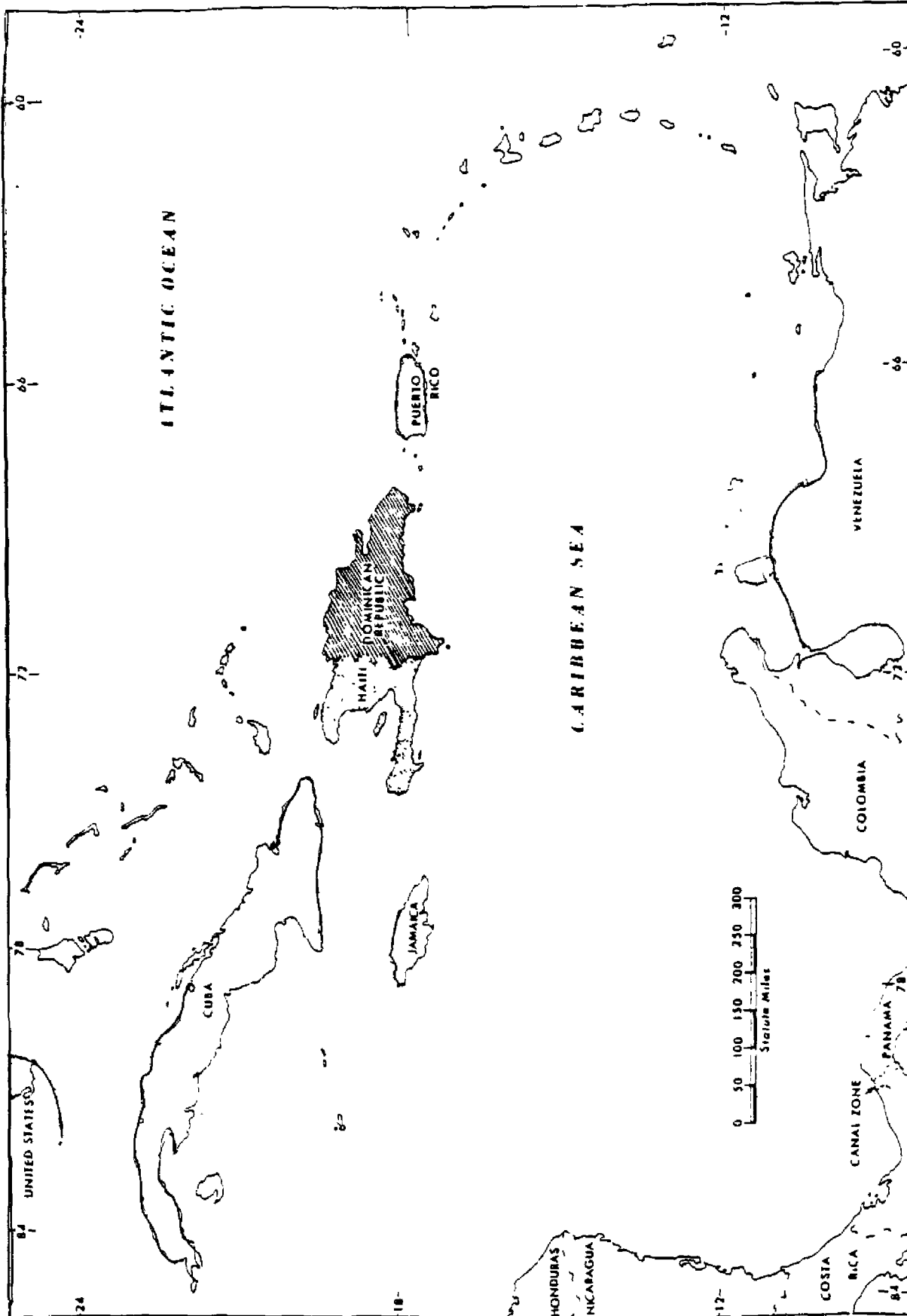


Figure 3-1 The location of the Dominican Republic.

Brief History

Although Santo Domingo is the site of the Western Hemisphere's first European settlement, first university and first hospital, it soon fell into the backwater of Spanish colonialism. This occurred after the far greater riches of Mexico and Peru were discovered, and after San Juan, Puerto Rico was designated the main port for the defense of the Windward Passage. From this time until independence from Spain in 1821, Santo Domingo and the Spanish-controlled eastern two-thirds of the island were variously invaded and temporarily controlled by the British, French, Dutch and Haitians. Following independence from Spain, the Dominicans suffered a particularly cruel occupation by the Haitians from 1824 to 1844, and were re-occupied by the U.S. Marines from the time of the First World War until 1929. Shortly after the Marines left the island, the Dominican Republic fell under the dictatorial power of the Marine-trained head of the National Guard, Rafael Trujillo. Trujillo's 30-year reign of absolute power and accumulation of personal wealth were ended by his assassination in 1961. After a short but tumultuous experiment with elected representative government, the Dominican Republic was once again, in 1965, occupied by the U.S. Marines. It appeared to the Johnson administration that the country was on the verge of being taken over by a conglomeration of left-leaning political groups.³ The U.S. intervention promoted the ascendancy of ex-Trujillo aide Joaquin Balaguer into the presidential palace, where he remained for 13 years until suffering a surprise defeat at the polls to Revolutionary Party candidate Antonio Guzmán in 1978. Guzmán had been

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Tad Szulc: Dominican Diary, New York: Delacorte Press, 1965.

in power a little over a year at the time of the hurricanes. The Dominican Republic now has a constitutional government with a division of powers modeled much after that of the United States. In fact, however, decision-making is still dominated by a strong president, who shares an uneasy balance of power with the military and major financial forces.

The Economy

Many of the battles in the Dominican Republic's tumultuous political history have ultimately been over the control of the nation's resources. The results of years of strong-arm politics have been an extreme concentration of wealth in the hands of a very small percentage of the population. For example, the U.S. Government estimates that 2% of Dominican farms encompass more than 50% of the national farmland, and that on these large estates more arable farmland lies fallow than⁴ is under cultivation. Particularly the nation's primary export product, sugar, is dominated by only two producers, the Dominican Government and the U.S.-based Gulf and Western Corporation. The government holdings were obtained from Trujillo's estate upon his death.

Income distribution is also skewed: the top 20% receive 54.3%⁵ while the bottom 20% receive only 4.3% (1970 figures). In addition, what national income there is to be distributed, is heavily dependent

⁴ USAID: Dominican Republic: A Country Profile, Washington, D.C.: Office of Foreign Disaster Assistance, April, 1979, p. 48.

⁵ Inter-American Development Bank: Economic and Social Progress in Latin America: 1980-81 Report, Washington, D.C.

on only five export products (which make up 82.7% of exports):⁶
 sugar, ferronickel, coffee, tobacco and cocoa. All of these products are highly sensitive to world price and demand fluctuations, making meaningful economic planning difficult. This combination of maldistributed resources and high dependency for income on a faltering world market has resulted in chronically high unemployment, estimated at around 20% in Santo Domingo⁷ and over 40% among rural agricultural workers.⁸ Santo Domingo, containing about 20% of the national population, is estimated to additionally have about 60%⁹ underemployment, leaving only about 20% of the city's workforce fully employed. The rate of underemployment in the "campo" (countryside) is unknown, but is suspected to be at least as high as that in the capital city.

The Dominican Republic has gone from being a net agricultural exporting country to a net importer, for a number of reasons. This is due to the problems of poor land distribution, inefficient use of land by large landowners, the use of the best soils for cash rather than food crops, poor agricultural marketing infrastructures, and burgeoning population growth. The lack of agricultural self-sufficiency bodes poorly for the economic future of the country.

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USAID: op cit, p. 36.

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Amiro Pérez Mera, and Julio Cross Beras: Patrones de Consumo y Estructura Social en Santo Domingo, Santo Domingo: Fondo para el Avance de las Ciencias Sociales, 1981, p. 32.

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USAID: op cit, p. 31.

⁹

Ibid., p. 31.

Another basic impediment to the development of economic self-sufficiency has been the lack of government involvement in the creation of a viable economic infrastructure. Although the national electrification program has progressed fairly well, other sectors have not done so well. The public education system is poorly distributed, poorly supplied and ineffective, resulting in a "functional" literacy rate of probably only 30%. Communications are poor, especially outside of the principal two cities of the country. The road system between Santo Domingo and the principal breadbasket, the Cibao valley, is overwhelmed and in decay, and much of the rest of the country is often virtually isolated by the lack of reasonably passable roads. The transport of goods or services is often severely slowed or blocked. The provision of potable water supplies has not been much better; in 1975 only 11% of rural and 66% of urban dwelling families had piped water connections¹⁰ and half of the entire country's population was without any kind of water service. Where services existed, the biological purity of the water was often insufficient.

In sum, in this very brief overview, we can see that the Dominican Republic suffers many of the same blocks to economic development experienced by other "third world" nations, and that many of the impediments (i.e. maldistribution of resources) have their bases in centuries of political turmoil and economic exploitation.

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Oficina Nacional de Planificación (ONP): Situación Alimentaria y Nutricional en la República Dominicana, Santo Domingo: December 1978, p. 54.

Demography

The Dominican Republic had a 1979 estimated population of 5,275,410 inhabitants.¹¹ With an annual population growth of around 3%,¹² the Dominican Republic ranks among the world's fastest growing. With about 48% of the population below the age of 15 years,¹³ the country has a dependency ratio of approximately 1.04, about twice that of most industrialized nations. The 1979 fertility rate was a high 159.9 per 1,000,¹⁴ and had not declined substantially in the previous decade. Statistics collected in 1971 show about 70% of the population to be living in localities with under 20,000 population and 30% in larger urban centers.¹⁵ Other recent estimates put the "rural" population at around 60% and urban 40%. Approximately a fifth of the national population lives in greater Santo Domingo, a city of close to a million inhabitants.

Health

The health conditions of Dominicans reflect the maldistribution of resources and economic opportunity. The health statistic which is most often looked at by social scientists as an indicator of economic development, infant mortality, was very high in the Dominican Republic

¹¹ Oficina Nacional de Estadística, 1981.

¹² USAID: op cit, p. 16.

¹³ Amiro Pérez Mera: op cit, p. 38.

¹⁴ Pan American Health Organization (PAHO): Health Conditions in the Americas 1977-1980, Washington, D.C., 1982, p. 28.

¹⁵ PAHO: Health Conditions in the Americas 1973-1976, Washington, D.C. 1978, p. 93.

at 104 deaths per 1,000 live births nationally, and 129 per 1,000 in rural areas, according to an independent study done in 1974.^{16,17} Life expectancy at birth, according to Ministry of Public Health statistics was 60.3 years (both sexes) for the years 1975 to 1980.¹⁸ By comparison, the infant mortality in the United States for 1975 was 16.1/1,000¹⁹ and the life expectancy was over 72 years.²⁰ The death rate per thousand population the same year was 34.4 in the Dominican Republic and 14.8 in the United States.²¹

The ten principal causes of death (all ages) in 1976 reflect a population with inadequate access to the basics of good health: food, housing, clean water and medical care. The causes of death are listed below in Table 3-1.

The principal causes of infant mortality are listed in Table 3-2, and demonstrate a similar picture. It should be noted that virtually all of the causes of infant mortality are highly correlated with malnutrition. The same was found in the principal causes of mortality for children under 13 years of age, Table 3-3.

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Ministry of Health statistics give an infant mortality rate of about half that stated here. According to the country's preeminent epidemiologist, Dr. Amiro Pérez Mera, and other researchers, the above-listed figures are believed to be as close to accurate as anything available. Virtually all health ministry figures are believed to be 45% to 50% underreported.

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ONP: op cit, p. 48.

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PAHO: op cit, 1982, p. 18.

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PAHO: op cit 1978, p. 248.

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Ibid., p. 132.

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ONP: op cit, p. 53.

TABLE 3-1
Ten Principal Causes of Death, All Ages, 1976

Order	Cause	Percentage of Deaths
1.	Poorly defined symptoms or fatal states	33.0
2.	Enteritis or other diarrheal diseases	6.8
3.	Causes of perinatal mortality	4.7
4.	Heart disease	4.3
5.	Pneumonia	4.2
6.	Cerebrovascular disease	3.4
7.	Avitaminosis and other nutritional deficiencies	2.0
8.	Malignant tumors (unspecified site)	1.8
9.	Bronchitis, emphysema, asthma	1.7
10.	Cirrhosis of the liver	1.6
	All other causes	36.5

Source: División de Estadística, SESPAS

TABLE 3-2
Ten Principal Causes of Death in Infants Less Than One Year of Age
(1975)

Order	Cause	Percentage of Deaths
1.	Poorly defined symptoms and fatal states	35.0
2.	Gastroenteritis and other diarrhea	18.1
3.	Causes of perinatal mortality	15.0
4.	Respiratory tract infections	6.4
5.	Other infectious diseases	6.0
6.	Anoxic and hypoxic conditions	3.9
7.	Nutritional deficiency	3.0
8.	Congenital anomalies	2.5
9.	Tetanus	1.9
10.	Meningitis	1.9
	All others	6.3

Source: División de Estadística, SESPAS

TABLE 3-3
Causes of Death in Children Under 13 Years of Age, South-West Quadrant

Order	Cause	Percentage of Deaths
1.	Malnutrition	29.9
2.	Gastroenteritis	22.2
3.	Bronchopneumonia	10.5
4.	Pneumonia	3.1
5.	Meningitis	2.9
6.	Bronchitis	2.6
7.	Prematurity	2.3
8.	Septicemia	2.0
9.	Dehydration	1.4
	Others	23.1

Source: Situación Alimentaria y Nutricional en la República Dominicana, p. 53 (22)

While malnutrition affects all age groups in the Dominican Republic, it is especially hard on children. A variety of nutritional studies in the Dominican Republic have found that more than half of all Dominican children suffer from varying degrees of malnutrition, as evidenced in Table 3-4.

In addition to the chronic malnutrition discussed above, the other major morbidity problems in the Dominican Republic are: enteritis and other diarrheal diseases, helminthiasis, measles, whooping cough, diphtheria, tuberculosis, typhoid fever, syphilis, gonococcal infections, dengue, filariasis and malaria. The helminthiasis, including hookworm, is reported to be over 80% prevalent in the rural areas of the country,^{23,24} and is a major cause of iron anemia and low personal energy levels.

²²
Ibid.

²³
Personal communication, Dr. Amiro Pérez Mera.

TABLE 3-4
 Classification of Nutritional Status in Pre-School
 Children by Region, 1976 (by percentage examined)

Nutritional State*	Regions		
	Southwest	Cibao	Southwest
Normal	24	33	39
Malnourished I	44	42	39
Malnourished II	27	22	16
Malnourished III	5	3	6

Source: Situación Alimentaria y Nutricional en la República Dominicana, p. 40 (25)

* Grading: Normal - 90% to 110% of ideal weight
 Grade I - 89% to 75% of ideal weight
 Grade II - 74% to 60% of ideal weight
 Grade III - less than 60%, or with edema

Explanation:

Grade I malnutrition evidences chronic insufficiency of caloric, or protein-caloric intake. This grade of dietary insufficiency typically results in low personal energy levels, decreased resistance to disease, and inhibited childhood development.

Grades II and III malnutrition evidence extreme chronic dietary insufficiency. Grade II typically results in greatly decreased disease resistance, and in particular strongly decreases a child's ability to survive an acute diarrhea episode. This level of malnutrition decreases a woman's ability to lactate or bear viable offspring, and would significantly minimize the ability of adults to carry out the work of daily survival. Grade III malnutrition shows the end-stages of bodily depletion. Death can be expected to follow unless proper nutrition is resumed.

Medical Care System

The medical care system, like most of the country's infrastructure, is based mostly in the two major cities of Santo Domingo and Santiago. However, each province has at least some kind of

government-run medical practice, usually small clinics primarily staffed by advanced medical students. These clinics are often only open part of the year, as is convenient to medical school teaching rotation systems, and usually are without the benefits of diagnostic equipment or sufficient pharmaceutical supplies. In Santiago and on the southern coast there are several government-run hospitals which are free of charge to indigent patients, but which are usually overcrowded and undersupplied. The military has its own medical personnel and facilities, but these are not usually available for civilian benefit. Most of the rural population is at some distance from adequate medical care, and emergency medical transportation is available only in the cities. According to a recent U.S. Government publication,²⁶ about 30% of the Dominican population, mostly low-income and rural, receives no medical care at all. The private sector cares for about 17%, and the rest is covered by the Ministry of Public Health and Social Assistance (SESPAS), the Dominican Social Security Institute, the military or church-run clinics. Only about 25% of births take place in hospitals or clinics.²⁷

Not only does the health ministry run several hospitals and numerous clinics, and oversee medical education in the nation's five medical schools (largely for foreign students), but it also has epidemiologic and preventive medicine functions. Most morbidity and mortality data published by the SESPAS Division of Statistics

²⁶

Ibid., p. 20.

²⁷

Organization of American States (OAS), República Dominicana: Plan de Acción para el Desarrollo Regional de la Línea Noroeste, Washington, D.C., 1977, p. 9.

(epidemiology wing) stem from diagnostic reports filed by the various hospitals and rural clinics under the control of the ministry. All vaccination programs are either run by the health ministry, or must be cleared by it. Approximately 6.7% of the 1979 government expenditures²⁸ went to the health sector.

Emergency Services

Emergency and disaster services are normally controlled and provided by three agencies in the Dominican Republic: Civil Defense, the Dominican Red Cross, and the armed forces. Civil Defense was created by law 257 in 1966 as the umbrella agency for national emergency planning and response for non-military emergencies. It is a small agency, consisting of a seven member directive council, an executive director and a few technical personnel. Civil Defense relies on other agencies to perform most of the actual tasks of disaster prevention and mitigation, and itself performs a coordinating role. The agencies the Civil Defense most often works through are the National Police and the military (for emergency evacuation, communications and transportation), the national and international voluntary agencies resident in the Dominican Republic, such as CARE and CARITAS (for shelter management and food distribution), and the National Meteorological Service for weather phenomena warnings.

The roles of the Dominican Red Cross are similar to those of the Red Cross in other developing countries: it provides the nation's only

consistent ambulance service, blood products collection, storage and transport, first aid and rescue training. It also provides a nationwide system of disaster shelters and supplies, an emergency communications system, and non-emergency courses for the public, covering a variety of health-related topics. The Dominican Red Cross is independent of the government, but is recognized as an integral part of the government's disaster response capability.

The Hurricanes

Hurricane David struck the Dominican Republic in the late afternoon of August 31, 1979. After a half-day stall off the coast (which reportedly caused many people to think that the storm would, in fact, not hit the island), it entered the central-south coast region with sustained winds of more than 155 miles per hour. Landfall took place on the border of the provinces of San Cristóbal and Peravia, to the southwest of Santo Domingo. (See map, Figure 3-2). The storm followed a northwesterly course across the mountainous backbone of the country and exited early the next morning on the north coast at the border with Haiti.

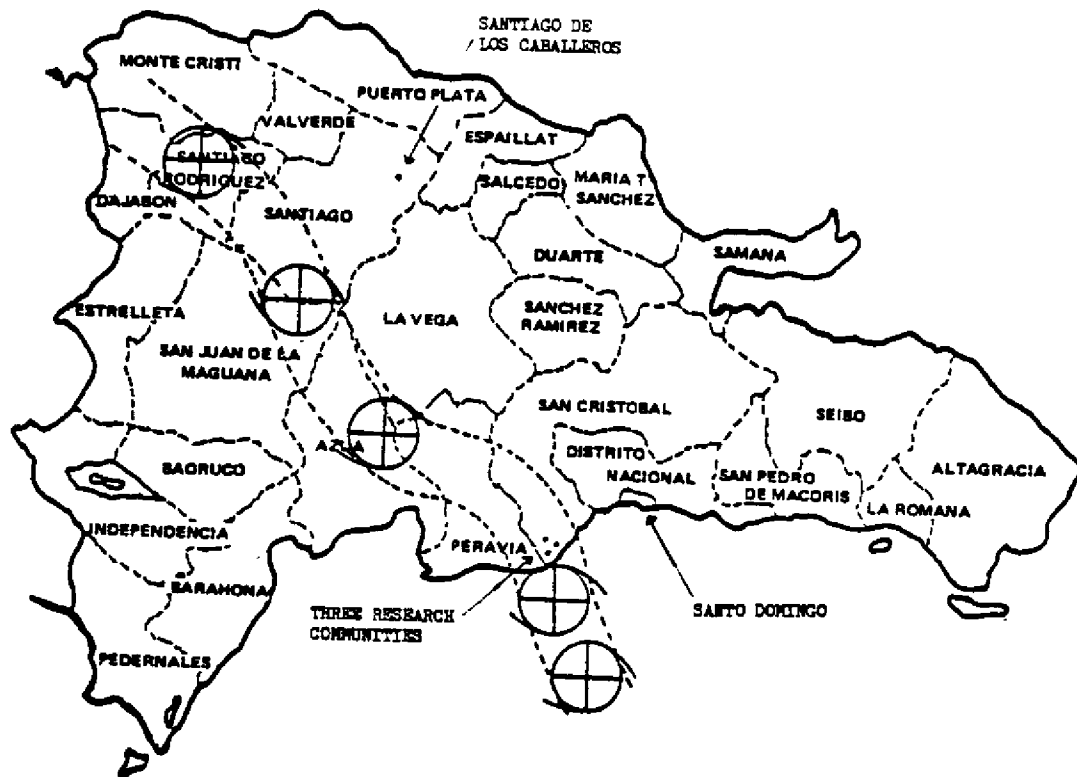
The Dominican Civil Defense began giving the population radio warnings more than 24 hours before the storm hit and used the army and national police to force the evacuation of thousands of inhabitants of marginal settlements on the riverbanks in and around Santo Domingo.²⁹ This evacuation alone is probably responsible for the fact that Santo Domingo sustained few deaths and injuries from a storm that destroyed a

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"Listin Diario," 31 August 1979, p. 1.

Figure 3-2

The Path of Hurricane David
Through the Dominican Republic, 31 August 1979



Source: Dominican Government

large (but unknown) percentage of the city's marginal housing. Other parts of the country did not fare so well, particularly the rural areas of the south-central coast, where this study takes place. Five days after Hurricane David passed over the country, Tropical Storm (later hurricane) Frederick approached and crossed the island following an almost identical trajectory. Although Frederick's winds were less powerful than David's, it crossed the island slowly and dropped tremendous amounts of rain on already soaked soil and a population which had just lost most of its housing. (Santo Domingo, east of the most heavily impacted area, recorded 19.1 inches of rainfall in the week of the two storms.)³⁰ Much of what survived Hurricane David was damaged by the floods of Frederick.

The actual number of deaths caused by the hurricane is unknown. The Ministry of Public Health estimates 2,000,³¹ while other sources closely involved with the health aspects of the relief effort put the figure closer to 4,000.³² The causes of death were not medically certified, and have not been investigated. The total number of injuries is likewise unknown, but the sample studied in this research experienced a roughly ten percent injury rate.

The Dominican government immediately asked for assistance from

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L. Lance Sholdt and Jack F. Manning, Vector Surveillance Activities in the Dominican Republic Following Hurricane David - 1979, Jacksonville, Florida: U.S. Navy, 1979, p. 2.

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José Oviedo Javier, "Atención de Salud en Relación al Paso del Huracán David," Santo Domingo: Secretaria de Estado de Salud Pública y Asistencia Social, May 1980, p. 6.

³²

Personal communication, Dr. Amiro Pérez Mera and Lic. Demetrio Castillo

the United States, and from the world at large through the United Nations Disaster Relief Office. While the international community prepared its response, President Guzmán called together a disaster committee, consisting of his cabinet and Civil Defense, and unofficially including the U.S. Ambassador Yost. The military was to provide services to Civil Defense as requested, security and transport, and communications assistance. Civil Defense was to coordinate voluntary agencies and the incoming international relief, and find food, clothing and health care for the 150,000 refugees who were in Civil Defense shelters.³³ The Ministry of Public Health and Social Assistance was to provide medical care and restore the public health, and the Red Cross was asked to secure medicines and blood products from foreign donors. Public Works was to assess damages and commence emergency repairs to critical transport, communications and water control facilities. The committee met on a daily basis to discuss problems and coordinate programs.

By two days after Hurricane David, USAID's Disaster Area Survey Team (DAST) was already deployed and working with the Dominican Government on assessing the extent of the damages nationwide.³⁴ Although DAST's original mission was only assessment and consultation, it soon became clear that the team's superior communications and helicopter transport capability was needed for rescue missions and the

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"Listín Diario," 2 September 1979, p. 1.

³⁴

U.S. Department of State (STATE), "Situation Report No. 3: Dominican Republic -- Hurricane David," Santo Domingo, 3 September 1979.

transport of food and medicines. Particularly after the further destruction to roads and bridges caused by Hurricane Frederick, helicopters became the only practical form of transport to the most severely ravaged parts of the country. The DAST team expanded to a peak of 295 men and 17 helicopters and other equipment,³⁵ and became the backbone of logistical support for many rescue missions in the first four post-disaster weeks.

In the meantime, Civil Defense, working together with nutrition experts from CARE and CARITAS, and with logistical support from the Dominican military and DAST, began the shipment of massive amounts of food to shelters and communities where foodstocks had been destroyed by the storms.

Only two major problems developed with the foreign aid which began to pour in, one logistical and one political. The logistical problem was typical of situations of a major disaster in a small country; convergence syndrome. The convergence was not mostly people but rather supplies, which clogged the airport and customs facilities. Pharmaceutical supplies needed to be sorted and sent out, a difficult process made even more difficult by poor labeling in foreign languages, and the persistence of some donors in airlifting expired or useless medicines. Additionally, customs officials had not been given clear directions on how to handle the sudden influx of imported goods, thus causing considerable delays in their processing.

The political problem was an extension of an already present

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STATE, "Final Situation Report: Dominican Republic -- Hurricane David," Santo Domingo, 1979.

rift between President Guzmán and his own party, the Partido Revolucionario Dominicano (PRD). With Guzman's implicit (some say explicit) permission, several PRD functionaries invited Cuba to provide much needed relief aid.³⁶ Cuba began an immediate airlift, the first plane carrying the Cuban Ministers of Health and Education. Shortly after the arrival of the Cuban plane, Guzmán suddenly reversed his decision and refused any further Cuban help. Speculation was that Guzmán retreated because of pressures from conservatives in his faction of the party, pressure from the Dominican military, and disapproval by the United States.^{37,38}

Storm damage estimates are as follows: (Source: USAID Final Situation Report³⁹)

Roads and Bridges: 142 bridges damaged or destroyed, all roads of the central southern part of the country became virtually impassable. Over a third of the entire country's rural road system was rendered useless.

Electrical Power: Up to 70% of the country's power lines were down and the country's two hydroelectric power plants received major damage and would require years to repair. The smaller thermoelectric plants were damaged more moderately. The Dominican Electricity Corporation did not have sufficient reserves for repair and

³⁶ "Latin American Political Report," 14 September and 21 September 1979 (2 issues), London.

³⁷ "Latin American Political Report," 7 September and 14 September 1979 (2 issues), London.

³⁸ "El Nacional," 9 September 1979, p. 1.

³⁹ STATE: op cit "Final."

reconstruction.

Housing: Up to 75% of the housing in the area between San Cristóbal and Baní was destroyed. In some communities, such as those studied intensively in this present work, more than 99% of housing was destroyed. It was estimated that at least 350,000 people were left homeless by the storms.

Agriculture: The total estimated value of lost crops and chickens was set at US\$ 266.5 million (1979 value), or about 25% of the agricultural GDP. Physical damage to farm and irrigation infrastructure was estimated at another \$46.4 million. Public forests also sustained severe damage.

Industry: No final figures have been given, but severe damage was sustained in some of the industrial belts north and north-west of Santo Domingo, and in and around the port of Haina. Additionally, the lack of electrical power caused many industries to remain closed for the first few weeks after the hurricanes.

In sum, the combined effects of the two hurricanes delivered a tremendously damaging blow to a country which was already struggling with insufficient resources and the effects of poverty. Both in human and financial terms, there were not sufficient reserves to cope with the effects of the storms without outside help.