

CASE REPORT

REPORT OF THE  
UNITED NATIONS DISASTER RELIEF CO-ORDINATOR  
ON  
HURRICANES DAVID AND FREDERIC  
IN THE  
DOMINICAN REPUBLIC  
AUGUST/SEPTEMBER 1979

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Tidal waves reached some 8 metres in height and the sea-front directly affected by the hurricanes was estimated to be 400 km wide.



## I. BACKGROUND

The Dominican Republic, with an area of 48,442 square kilometers, occupies the eastern two-thirds of the island of Hispaniola in the Caribbean Sea between Puerto Rico and Cuba. Haiti occupies the remaining one-third. Four mountain ranges separated by valleys traverse the country from east to west. The principal mountain range and primary watershed is the Cordillera Central which stretches across the heart of the country. One of its peaks, Pico Duarte, with a height of 3,800 metres, is the highest point in the Caribbean. In the upper central part of the country between the Central and Septentrional Mountains is the Cibao, a large and fertile valley which is often called the "food basket" of the Dominican Republic.

Considering its geographic situation, the Dominican Republic should have a subtropical climate but, due to its peculiar relief, ocean currents and year-round trade winds, temperatures are moderate. The average temperature in August is approximately 28°C; in January, during the cool season, it is around 24°C. In general, the rainy season lasts from May through October or November in the south and from December to April in the north. Annual rainfall ranges between 510 mm and 2,450 mm, averaging about 1,400-1,600 mm.

The population of the Dominican Republic is about 5 million with more than 40 per cent of its people living in the urban areas (nearly 1,000,000 in Santo Domingo, the national capital and more than 270,000 in Santiago de los Caballeros, capital of the province of Santiago in the Cibao valley).

## II. NATURAL HAZARDS

The Dominican Republic is subject to both drought and heavy rainfall. Because of its terrain, the risk of flash floods is particularly high. Nearly every year the country is affected by floods which damage crops and roads as well as "marginal" settlements.

The country is also prone to landslides, caused by heavy rainfall, soil erosion or seismic movements. Numerous earth tremors of undetermined magnitude have been registered since 1911, in addition to several earthquakes measuring at least 6 on the Richter scale, particularly in 1946.

However, tropical storms and cyclones constitute the most dangerous natural phenomena that threaten the Dominican Republic. Among the numerous hurricanes that have struck the country during the present century, hurricane "San Zenón", in September 1930, caused the worst natural disaster in the history of the country with 4,500 deaths and 20,000 injured. Hurricane David on 31 August 1979 and hurricane Frederic, four days later, also caused a major disaster. Fortunately, thanks to some appropriate preparedness measures taken before the landfall of the hurricanes, the loss of life was not as great as in September 1930.

### III. PREPAREDNESS

In June 1966, the "Civil Defence Law" established the "Oficina de Defensa Civil" and described its duties and administrative organization.

The first priorities of the Civil Defence, and of its branch offices in each provincial capital, are the promotion and implementation of appropriate preparedness measures at the national and provincial levels in order to cope with any disaster situation, and, when disaster strikes, to carry out emergency rescue and relief operations.

Under the chairmanship of its Executive Director, the Civil Defence is to have a permanent staff and to ensure that all relevant national institutions participate in the implementation of preparedness activities and properly assume their respective rescue or relief functions. The Civil Defence has to ensure also that specially-trained volunteers are integrated into well-equipped Civil Defence mobile teams which could act promptly and wisely in emergency situations.

In case of disaster, the Civil Defence shall co-ordinate its activities with other national institutions able to participate in emergency operations such as the Armed Forces, the Police Force or the Fire Department. It is also responsible for the organization of the auxiliary services provided by professionals such as physicians, engineers, social workers, etc.

The law stipulates that the President of the Republic is entrusted with the general direction and control of the Civil Defence. In case of disaster, he may declare a "state of siege".

In December 1976 and August-October 1977, at the request of the Dominican authorities, two UNDRO consultants carried out disaster preparedness missions. They undertook an in-depth survey of natural and "man-made" risks that threaten the country, in order to evaluate the organization and scope of the Civil Defence Office (in 1976) and the National Fire Brigade (1977). Each mission formulated recommendations for improvement, which were transmitted by UNDRO to the Government of the Dominican Republic.

#### IV. THE NATURE OF THE DISASTER

In late August and early September 1979, hurricanes David and Frederic ravaged the Caribbean region with force probably unprecedented in this century. Hurricane David, with winds up to 240 km per hour and heavy rainfall, first reached the islands of Martinique, Guadeloupe and Dominica in late August, then continued towards the Dominican Republic which was hit during the afternoon of 31 August. It entered the mainland approximately 40 km west of Santo Domingo. David's eye had a diameter of about 80 km with its fringes touching Santo Domingo on one side and the city of Azua on the other. Following a NNW trajectory, David left the country from the extreme north-west and affected the north-east of Haiti, although with much less force. (See inside back cover.)

Four days later hurricane Frederic, following a somewhat similar path and carrying far heavier rainfall than David, although with less intense winds (74 km per hour), brought week-long downpours and caused extensive damage which aggravated an already disastrous situation and severely hampered both damage assessment operations and rescue and relief efforts.

The winds caused extensive damage to the country's infrastructure (electricity and telephone networks, private and public structures, etc.). In the southernmost areas, entire villages were flattened and trees and crops were destroyed. The heavy rainfall caused flash floods with rivers bursting their banks to flood extensive areas. Above all, it damaged dams, irrigation networks and drinking-water supply systems.

The combination of winds and floods also damaged hydro-electric and crude oil plants, delaying the restoration of power and gasoline supplies in the country for several weeks. Many roads were impassable or destroyed; aqueducts providing water to major cities were damaged; and losses in the agricultural sector seriously affected the country's economy.



Hurricane winds with the almost incredible velocity of 240 km per hour dislodged this crane in the harbour of Santo Domingo and threw together a shipment of new cars which had just been off-loaded.

