Research Note

EROSION ON THE HILLSIDES OF THE DOMINICAN REPUBLIC[1]

Deforestation and indiscriminate hillside farming using primitive techniques have led to massive damage through erosion on the hillsides of the watersheds of the Dominican Republic. Basic factors leading to such destructive soil utilization are increased population pressure and low education levels in rural areas, as well as acute needs for food and shelter, and lack of an appropriate technology to maximize soil productivity in terms compatible with resource conservation. A recent survey showed soil losses ranging from 95 to 346 t/ha/yr in seven major watersheds covering approximately 430,000 ha:

Watershed	*Erosion, t/ha/yr*
Chaquey	95
Guayubín	111
Nizao	125
Las Cuevas	257
Yaque del Norte	275
Maguaca	294
Bao	346

These are severe losses that, if not prevented or minimized, might eventually lead to the total destruction of the soil base in these areas. Even higher losses have been reported from the Ocoa watershed.

Mostly caused by heavy, intense rainfall on poorly protected land, coupled with mechanical downhill movement of soil during land preparation and cultivation, the problem of erosion is severe (fig. 1). This erosion leads in extreme cases to exposed subsoils and even parent material of low productivity, which when continuously cultivated and poorly managed, results in reduced yields. The major problems are rampant cutting and clearing of native forests. This deforestation leads to losses of soil and water, decreased production, silting of reservoirs, and road deterioration at a fast rate (fig. 2).

The following tabulation shows the distribution of the land according to slope categories in the Ocoa watershed:

Slope, %	*Percent of total area*
0–15	10
15–30	25
30–60	40
>60	25

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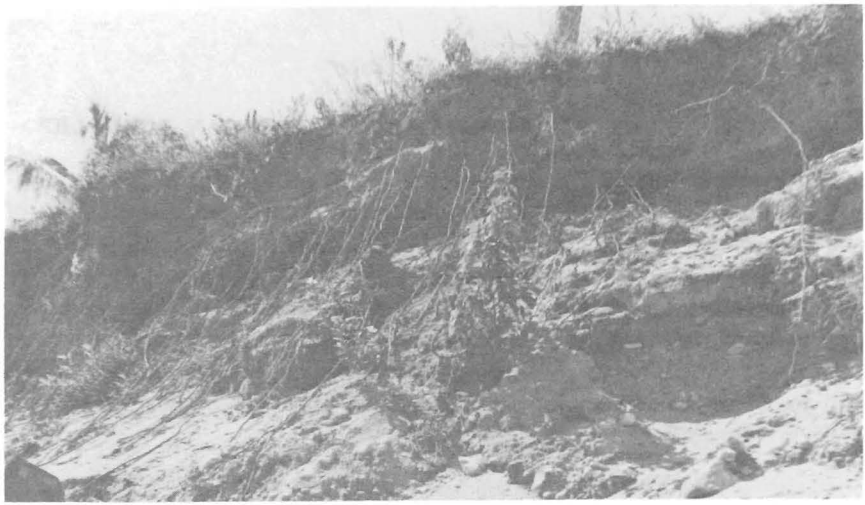

FIG. 1.—Ravages of erosion on hillsides in the Dominican Republic.

FIG. 2.—Indiscriminate deforestion leads to heavy soil losses by erosion.

More than 60% of the land has slopes greater than 30%. Slopes of more than 60% are a common feature. The proportion of small farms (less than 5 ha) is smaller in the slope category 0–15%. Thus the problem of farm size and soil deterioration through erosion are closely interrelated.

A recent survey of the Ocoa watershed revealed that more than 50% of its 70,400 ha is being used for purposes not compatible with their inherent capability.

TABLE 1.—*Actual and suggested use, according to capability of lands in the Ocoa watershed*

Land use	Actual use	Proposed use	Area in conflict
		Ha	
Cropland	10312	8125	2187
Pasture	43276	27675	15601
Forest	16687	34600	17913

Table 1 shows actual and suggested land use in Ocoa according to capability. The data show a total of 35,701 ha in land use conflict. There are 2,187 ha in cropland, dispersed throughout the hillsides, that should be under pasture or forest cover. Only 24% of the land is under forest cover instead of the 49% that the land capability survey suggests. Almost 62% of the land is under pasture cover while only 39% is suitable for such a purpose. The decline in forest lands reflects the needs of the hillside farmers to earn a living at any cost. The soils are mostly Lithic Dystropepts, Lithic Ustropepts, Typic Dystropepts and Typic Ustropepts. If properly managed, they can produce fairly good crops of beans, potatoes, pigeon peas, onions and other crops on the lesser slopes, and permit efficient livestock raising on moderate slopes. The steeper slopes should be protected with permanent vegetatition such as timber, coffee and fruit trees.

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