

Land Use in Guatemala¹

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The Republic of Guatemala is perhaps the best known of the Central American countries. In Colonial times its capital was the center for the government of the entire area. It occupies the area between 13° 42' and 17° 49' North Latitude and between 88° 10' and 92° 30' West Longitude. It is bounded on the north and northwest by Mexico, and on the northeast by the Territory of Belise (British Honduras), which it still claims. On the east and southeast it is bordered by the Gulf of Honduras, by Honduras, and El Salvador. On the southwest it has some 200 miles of coast line on the Pacific Ocean. Puerto Barrios, its eastern seaport is 1124 miles south of New Orleans.

Its area of 48,290 square miles is about the same as the state of Louisiana, or seven-tenths of the size of Oklahoma. Most of its water area of 6248 square miles is included in its four best known lakes, Izabal, Peten, Atitlan, and Amatitlan.

Land elevation in Guatemala varies from sea level to 13,809 feet, the altitude of Mt. Tajumulco, the highest peak. Thirty-two volcanoes range in height from 3000 to over 13,000 feet. Eleven are over 10,000 feet high. The principal range, the Cordillera de los Andes, extends across the country from Mexico southeastward toward Honduras. As a rule, the smaller ranges follow no definite direction, making road building a difficult problem. There are a few small plateaus in the mountainous area. Numerous elevated valleys in the highlands provide better farming areas but they are very narrow and often are subject to flooding.

The northern lowlands of Peten and the eastern coast cover about one-third of the area of the country. Drainage is poor and most of it is covered by forest. Two rivers, the Rio Dulce and the Motagua, can be used for navigation. The Motagua is the longest river in Guatemala. The Pacific coast lowland varies in width from 20 to 45 miles. It is crossed by numerous small streams. Although some of the area is swampy jungle the greater part could be cleared for farming purposes. Between the coastal lowland and the highland is a narrow piedmont area where the volcanic soil has washed from the mountains, making it one of the most desirable coffee areas of the country.²

Climate in Guatemala varies with altitude. A rainy season from May through October furnishes more than twice as much rainfall as the winter dry season. Near the east coast the average annual rainfall of 103 inches is adequate for crops, as no month receives less than 3.6 inches of precipitation. Rainfall on the west coast is slightly less, being higher on the southeast. At Guatemala City, where the yearly average is 52.1 inches, five winter months average less than one inch of moisture. As a rule, the highlands receive less rainfall, the lowest 26.4 inches at Quezaltenango is often inadequate for crop production.

Although monthly averages are misleading the eastern coastal area has a temperature variation of only 13.1 degrees, with the highest 83.3° in May to 70.2° in November. At Quezaltenango in the high mountain area the variation is only 10.6° degrees, with a May average of 62.4° and a January low of 51.8°.³ The high humidity and intense heat in the afternoons make the coastal areas very undesirable, while the highland areas preferred by the

¹ Material for this study was gathered on a visit to Guatemala in July, 1955.

² Lyman Judson and Ellen Judson, "Let's Go to Guatemala", Harper and Brothers, New York, (1949), pp. 239-291.

³ Fred A. Carlson, "Geography of Latin America", Prentice-Hall, Inc., New York, (1940), p. 463.

inhabitants often suffer from droughts. An inverted V-shaped savanna area east of Guatemala City in the rain shadow of the mountains has a gravelly soil, but with inadequate rainfall to grow good crops.

The soils of Guatemala are of volcanic origin, being dark gray or black in color. Even the sand on the Pacific coast is black. The soil of the coastal areas has a high humus content. Most of the mountains are huge piles of coarse-grained volcanic soil. A few feet below the surface it is so coarse-grained that it can be used for road construction. In the western highlands rocks are exposed in only a few areas, and canyons of a thousand feet or more in depth are common. Stone for street repair, and limestone for tanning purposes are often transported great distances by pack train. In the southern part of the country igneous rocks are near the surface. As a general rule, the soils are very fertile and will produce good crops when the rainfall is sufficient.

Transportation facilities vary from the most primitive type to the use of the modern airplane. In the highland areas the most common local transportation is by man. He walks for many miles carrying his pack, often weighing over a hundred pounds, on his back, while his wife carries smaller weights on her head. If darkness overtakes them they will sleep beside the road and continue the trip the next day. Grain, wood, lumber, fruit, and even stone are transported in this manner, although heavier material is often moved by pack train. Mules are preferred for this purpose, even though teams of oxen are numerous and are used for short distances. Paths and trails are common in this country, but good roads are still scarce. The much advertised Pan-American Highway named the Franklin D. Roosevelt Highway in Guatemala is open from the Mexican border through Guatemala City to the El Salvador border. Part of it is paved with asphalt but most of the roadbed is made of coarse volcanic soil, which washes easily after each hard rain. It is narrow, the grades are steep, and many curves are dangerous. The concrete road from Guatemala City to San Jose on the Pacific coast was built with the assistance of the United States during World War II and is the best highway in the country.

A highway is being constructed from Guatemala City to the east coast at St. Tomas on the Gulf of Honduras, and another is planned to link the capital with Coban and Flores.⁴ As the latter will cross some hundred miles of jungle it may be years before it is completed. A Pacific Highway which follows the coastline is completed and is being used. Truck and bus lines connect most of the larger towns. Air service is available at Guatemala City, Quezaltenango, Coban, Puerto Barrios, Flores, and a few other cities.

Guatemala has two narrow-gauge railroads. The International Railways of Central America, a United States Company, has 580 miles of track and connects the Atlantic and Pacific areas, through Guatemala City and on the Pacific coast to Mexico and El Salvador. The Verapaz Railway, 28 miles in length, is government owned. It links the coffee growing region with a river outlet to the Caribbean Sea.

The estimated population of Guatemala in 1951 was 2,890,000. Some 800,000 of these lived in Guatemala City. Agricultural pursuits accounted for some 71 per cent of the employed labor and about 95 per cent of the exports.

Settlement of the low areas of Peten is limited to coastal and railroad towns, with few people living in the jungles or areas that have not been cleared for plantations. Most people live in the areas between 1500 and 6000 elevation which includes most of the highlands region.

⁴The Treaty of 1859 with Great Britain included a clause that Great Britain was to establish suitable communications to the area. The Guatemalans understood this to be a road, which was never built.

The natives are of Indian ancestry, descendants of the ancient Mayans. They are short when compared to the white race. Women weigh from 75 to 90 pounds, and the men weigh from 100 to 150 pounds. In 1953 Indians represented 53.5 per cent of the population. The term "Ladino" is used for anyone who is not a full-blood Indian. A few negroes live in the port cities of Livingston and Barrios. The white inhabitants are mostly Spanish, with some German and other foreigners living on the plantations and in the cities. Most of the rest of the population is a mixture of Indian and white. Although schools are provided in all of the cities and towns many natives are still unable to read or write. Few newspapers were seen in the entire country.

Land ownership in Guatemala is quite indefinite. Much of the land is still owned by the government. Huge estates have been owned by families for hundreds of years without any attempt at improvement, while corporations and individuals own and operate the plantations. Indians farm land that they have owned for centuries, even though, as they say, they had purchased it several times from the government.

The natives do not seem to like straight lines or rectangular surveys for land description, but rather prefer a stream, tree, or a bush to define the boundaries of their irregular-shaped land holdings. The plantations and ranches are large but the native rarely has over a few acres upon which to make a living. As most of the natives live in the mountains, some areas seem to be over-populated.

Plantations and ranches are often fenced with barbwire, but in the dry areas some use cactus, or where there is sufficient moisture, poles are set in rows where they take root and grow into a brush fence. Few fences are found in the high mountains.

Machinery and tools used in this country are still very primitive. The wide hoe and machete are still used by most of the native farmers. Where the land holding is larger the oxen team and wooden plow is used to prepare the land and to cultivate the crop. Very few tractors or other machines are used for general farming. In 1950 there were only 872 tractors in the entire country. Most of these were used in constructing highways or in the cities for leveling building sites.

Forests occupy approximately 60 per cent of the total area in Guatemala. There are about 15,000,000 acres of hardwoods and 3,000,000 acres of softwoods. The leading woods entering into export are mahogany, balsa, Spanish cedar, ligum vitae and primavera. Pine, cedar, cypress and mahogany are used at home.⁵ Practically all of the northern province of Peten and most of the Pacific and Atlantic coastal areas are forested. Because of the difficulty in transportation, lumber for export is harvested near the coast or near the railroad or rivers.

Chicle, the sap of the zapote tree, is an important item of export. It is estimated that there are over 25,000,000 zapote trees in the Peten region. The latex is gathered by the native chicleros during the rainy season, and shipped by air to Puerto Barrios, where it is exported.

Guatemala's national economy is largely based on agriculture. It has about 1,629,500 acres under cultivation, and 508,700 acres in pasture. Large areas of good soil and favorable climatic conditions make possible a large variety of agricultural products.

Corn and beans are the leading domestic staples, followed by sugar, rice, wheat, fruit, and tobacco in the subsistence crops. Coffee is the leading export accounting for 77 per cent of the total. Bananas are next in

⁵ Guatemala, Pan American Union, Washington, D. C., (1948), pp. 12-14.

importance. Other exports are chicle, abaca, cacao, and other oil bearing seeds.

The well-drained volcanic soil of Guatemala is ideal for coffee growing. Some varieties grow best at sea level to 2000 feet, while others thrive at altitudes up to the frost line. In Guatemala it grows best on volcanic slopes at from 2500 to 5000 feet. It requires at least 70 inches of rainfall, well distributed throughout the year. The slopes of the mountains facing the Pacific and the region around Coban are the leading coffee producing areas of the country. Coffee cultivation requires careful weeding, pruning, and pest control. Coffee seedlings are grown in carefully prepared and well shaded gardens for two years before they are transplanted to the orchard—"the cafetal." They are set out in rows about eight to twelve feet apart, and are kept pruned not only to keep down their height but also to remove any dead or diseased branches.

Even mature trees are shaded for they cannot stand the sun. In the coastal areas young plants are sometimes shaded with banana plants until other trees are grown for this purpose. In the southern area the gravilea (mountain ash) tree is used, while in the Coban region the cushin tree is favored for shelter purposes. The trees usually produce a full crop until their fifteenth year, although some may produce up to thirty years before they must be replaced. The beans which are called cherries ripen in the fall and winter. When ripe they are a rich red color. They do not all ripen at the same time, so must be picked often. Taking care of the trees and picking the coffee takes much hand labor so the plantation owners must depend upon cheap labor to grow coffee. A coffee plant will yield from one to twelve pounds of beans a year, varying with climatic conditions. In Guatemala the "wet" or "washed" method is used to prepare the coffee for market. The cherries are soaked over night in large tanks of water to soften the outer skin and make it easily removable by the pulping machines. After the pulp is removed they are again washed, then dried, and packed for shipment in bags of 132.276 pounds.⁶ In 1951 Guatemala exported 848,000 bags which accounted for 3.3 per cent of the world's supply.

Bananas were introduced into Guatemala in 1516.⁷ They were grown for local consumption until 1880 when steamships began bringing them to the United States. The Boston Fruit Company and its successor, The United Fruit Company deserves credit for the development of the banana plantations and the great export trade in this commodity.

The early plantations were located along the Motagua River near the present town of Bananera. After years of successful production it was found that the soil would no longer produce well, and today only about 25 per cent of the export bananas are produced in this region. It was found that the Pacific coastal area was less subject to banana disease and pests, so today two great areas of plantation production are located on the southwest coastal plain. Bananas for local consumption are grown in every province of the country, and were observed growing at altitudes of 5000 feet. When grown on plantations they are set out in rows of about 500 plants per acre.⁸ Practically every valley in the country seemed to have scattered patches of bananas, many containing only a few plants. Many more bananas could be grown on the Pacific coastal plain if markets and shipping facilities were available on that coast.

Corn and beans are the staple foods of most of the people in Guatemala. Often they are grown together and acreage estimates may include both crops. It is believed that corn originated in the highlands of Guatemala and southern Mexico. Today corn of many colors, even black, may be found

⁶ Coffee, Pan American Union, Washington, D. C., (1952).

⁷ Lily Aquirre, "The Land of Eternal Spring", The Patto Press, New York, (1949), p. 23.

⁸ Erna Fergusson, "Guatemala", Alfred A. Knopf, New York, (1938), pp. 178-193.

at the various markets where it is sold by the pound. It is cultivated on the steep mountain sides by use of the hoe, and in the valleys by teams of oxen. In some years nearly half of the area used for subsistent crops is in corn. As the yield is low there is usually a shortage and corn must be imported. The estimated production of corn in 1950 was 378,000 metric tons. Dry bean production was estimated at 27,000 metric tons, while broad beans accounted for 4000 metric tons.⁹

Some sugar cane is produced in nearly every section of the country but the greatest production is centered on the Central Pacific coastal plain. When sold for local consumption the sugar is dark in color and is made into cakes about the size of a half grapefruit. Estimated production in 1951 on 22,000 hectares was 708,000 metric tons.¹⁰

Rice, which is also grown on the Pacific plain is not used by many people. However, the production of 8000 metric tons was insufficient for local use. The production of potatoes was about the same amount. They are grown in the northwest mountain area.

Wheat, too, is a mountain crop grown in small fields on small hand-made ridges. It is cut with the hand sickle and threshed with the flail. The production in 1951 on 42,000 hectares was 23,000 metric tons. Most of this is sold and used in the cities.

Tobacco is grown in small patches over a large area, but especially in the Departments of Zacapa and Santa Rosa. It is greatly in demand for cigarettes. The production of 1900 metric tons on 3000 hectares in 1952 was insufficient to meet the local demand.¹¹

Oranges, lemons, and limes are grown for local use in many areas of the country and were seen up to 5000 feet elevation in valleys. Breadfruit grows wild in the lowlands. Patches of cassava, locally named yuca, grows in the lowlands and along the river valleys. Production in 1949 on 1000 hectares was estimated at 3000 metric tons. Cacao was growing wild in the northern lowlands when the Spanish captured the country and it soon became one of the most important export crops. In the last century production has declined. The 1951 production of 600 metric tons was needed for home consumption.

Cotton is by far the most important fiber used in textiles. Both white and brown cotton of short fiber is grown, mostly on the Pacific coastal plain. The 1952 crop on 9000 hectares produced an estimated 7000 metric tons of seed and 3000 metric tons of lint. Sheep are raised in the mountainous areas for their wool. They are small in size and are of several colors. Wool is highly prized by the natives for making blankets and clothing. Goats too, are raised in the higher altitudes. The 1951 estimate for sheep was 889,000, and the number of goats given as 77,000. The growing of sisal (agava) is being encouraged. It formerly grew wild in the savanna area. In 1950 the production was 600 metric tons on 1000 hectares. Abaca (manila hemp) has recently been grown on several plantations on the lower Motagua River valley. It grows well here and promises to be a very valuable new crop for Guatemala. 4200 metric tons were produced in 1950. The sesame plant produces a bountiful seed crop in this area. Of an estimated production of 1000 tons per year about 80 per cent is exported.

The Guatemalan native still loves horses and the census of 1949 listed 183,000 head. These horses are small. They are used on the cattle ranches and are numerous in the savanna area, but few seem to be used for draft purposes. The same census listed 58,000 mules and 1000 asses. These are

⁹ Production figures are the latest available from the files of the Pan American Union and the 1953 United Nations Yearbook, Vol. VIII, Part I, Production.

¹⁰ One hectare (2.471 acres). One metric ton (2204.6 pounds).

¹¹ Chester Lloyd Jones, "Guatemala, Past and Present". University of Minnesota Press, Minneapolis, (1946), pp. 168-196 includes an excellent set of production maps.

valuable for pack animals and for field work, although many farmers seem to prefer oxen to pull plows and carts.

Of a total cattle population of 1,194,000 head in 1951, milk cows accounted for 206,000. Milk is not generally used by the natives, but sold for use in the cities, so most of the dairy cows are found near urban centers. Beef cattle are grown in the area east of Guatemala City but the greatest numbers are raised on the Pacific coastal plain where grass is more abundant. The natives living in the highlands raise a few hogs. As they are taught not to eat corn but to live on grass and roots they are small in size. In 1951 only 415,000 were listed for the entire country.

With a rapidly growing population Guatemala must soon find ways of producing more food to feed its people. The highland area where most of the people live is over-populated, as some of the mountain slopes are already farmed up to the top of the mountain. It still has much rich soil on the Pacific and Atlantic coastal plains, and in Peten, that could be cleared for growing crops.

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