

EL SALVADOR: A COUNTRY PROFILE

prepared for

The Office of U.S. Foreign Disaster Assistance
Agency for International Development
Department of State
Washington, D.C. 20523

by

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The profile of El Salvador is part of a series designed to provide baseline country data in support of the planning and relief operations of the Office of U.S. Foreign Disaster Assistance (OFDA). Content, scope, and sources have evolved over the course of the last several years; the relatively narrow focus is intentional. To avoid redundancy, some topics one might expect to find in a "country profile" are not covered here.

We hope that the information provided will also be useful to others in the disaster assistance and development communities. Every effort is made to obtain current, reliable data; unfortunately it is not possible to issue updates as fast as changes would warrant. A cautionary note, therefore, to the reader: statistics are indicators at best, and if names and numbers matter, the bibliography will point to a current source.

We invite your comments and corrections. Address these and other queries to OFDA, A.I.D., as given above.

October 1984

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1. General Information1.1 Geographic Codes

AID	519
State Region	ARA

1.2 Host Mission in U.S.

Embassy of the Republic of El Salvador
2308 California St., NW
Washington, DC 20008
Tel: (202) 265-3480, 3481, and 3482

For current Embassy staff, please consult the
Department of State, Diplomatic List.

1.3 U.S. Mission in El Salvador

Embassy of the United States
25 Avenida Norte No. 1230
San Salvador, El Salvador

APO Miami 34023
Tel: (503) 26-7100

For current U.S. Mission staff, please
consult the Department of State, Key
Officers at Foreign Service Posts.

1.4 Time Zones

EST -1 (-2 during Daylight Savings Time)
GMT -6

1.5 Currency (October 1984)

Colones 2.50 = US \$1.00 (official rate)
100 centavos = 1 colon
Rate currently given by banks in El Salvador
is 3.95 colones per \$1.00.

1.6 Travel and Visa Information

Passport and Visa: Passport or proof of citizenship is required.
A tourist card is issued upon arrival. No
visa is required.

Health Requirements: No vaccinations are required.

1.7 Holidays and Calendar

New Year's Day.....January 1
Holy Week (week before Easter)..variable date
Labor Day.....May 1
San Salvador Feasts.....August 3-5
Independence Day.....September 15
Columbus Day.....October 12
Revolution Day.....October 15
All Souls' Day.....November 2
First Cry for Independence.....November 5
Christmas Day.....December 25

Fiscal year: calendar year

1.8 Sister Cities

Nueva San Salvador	
(Santa Tecla)	La Mirada, CA
San Miguel	New Milford, CT
San Salvador	Hollywood, FL
Santa Ana	Miramar, FL
	Santa Ana, CA

1.9 Treaties and Agreements

Agricultural Commodities
Air Transport
Reciprocal Customs
Defense
Economic and Technical Cooperation
Investment Guaranties
Peace Corps
Telecommunications (Radio)

1.10 International Organization

Memberships

Central American Common Market (CACM), FAO, G-77, IADB, IAEA, IBRD, ICAC, ICAO, ICO, IDA, IDB, IFAD, IFC, ILO, IMF, INTELSAT, ITU, IWC (International Wheat Council), OAS, ODECA (Organization of Central American States), PAHO, SELA, U.N., UNESCO, UPU, WFTU, WHO, WIPO, WMO, WTO.

1.11 Geography

Location and area: With an area of 21,393 sq. km, El Salvador is the smallest Central American country and the only one without a Caribbean coast. It is bounded on the north and east by Honduras, and on the west by Guatemala. The Pacific Ocean lies to the south, with the Gulf of Fonseca to the far southeast. Most of the country consists of volcanic highlands of moderate elevation. San Salvador, the capital, is located in these highlands on an intermontane plateau about 600 m high.

Climate: During the rainy season, from May to October, precipitation is heavy throughout the country; the rest of the year there is almost no rain. San Salvador receives an average of 1,600 mm during the rainy season and only 150 mm during the dry season.

The climate is tropical, though temperatures tend to be cooler in the highlands. Temperatures rarely fall below 18°C (65°F) except on the highest slopes of the volcanic ranges. In San Salvador, the average is 23°C (74°F), varying only 3°C between the warmest and coldest months.

See Section 2.1 for a more detailed description of the topography, and Appendix A for a rainfall chart.

1.12 Ethnic and Sociocultural Groups

About 93% of the population is mestizo (mixed Spanish-Indian ancestry), 5% is Indian; and 2% white (concentrated around San Salvador). Most of the Indians are descended from the Pipil tribes who inhabited almost two-thirds of the country before the Spanish came. The Pipil are of Mexican origin, while another important Indian group, the Lenca, are descendants of the early Mayas.

The term ladino is used as a cultural designation meaning non-Indian, although there is variation within this classification with respect to race. Almost all the Indians have become fully integrated into the modern culture, and are thus considered ladinos. Only a small number of Indians retain their native way of life.

1.13 Languages

Spanish is the official language. It is spoken by almost everyone, including those Indians who speak Pipil (a Nahuatl language) as their native tongue. Pipil is the only indigenous language still spoken, and its use is diminishing as the ladino culture spreads. It is spoken mainly by the elderly and women in a few southwest towns.

1.14 Religion

Roman Catholicism is the dominant religion. Separation of church and state is guaranteed by the constitution, and there is complete freedom of worship.

1.15 Government

National Government: El Salvador's recent political history has been characterized by extreme instability and civil unrest. In October, 1979, the military regime of General Carlos Humberto Romero was ousted in a coup that brought to power a 5-member junta composed of two army colonels and three civilians. The coalition government implemented a series of reforms including the nationalization of banks, creation of government commodity export monopolies, and redistribution of land. These measures were aimed at breaking the power of the economic elite and were met with opposition from conservative landowners and businessman. However, the junta also encountered criticism from leftists who protested the government's inability to control right-wing and military violence.

The polarization between left and right and the junta's inability to mediate continued throughout 1980 and 1981 with strikes, kidnappings, and intense fighting. The assassination of Archbishop Oscar Arnulfo Romero on March 24, 1980, served to fuel the conflict and by the end of the year, the country was virtually in a state of civil war. On December 22, 1980, Jose Napoleon Duarte was named president in an attempt to prolong the life of the junta.

The junta began its transition to an elected government with elections for a Constituent Assembly in March 1982. There was a large turnout of voters, but none of the three major parties running (the Christian Democratic Party - PDC, the Republican National Alliance - Arena, and the Party of National Conciliation - PCN) received a majority. Alvaro Magana, an independent, received the most votes and was named interim president by the Assembly. Roberto D'Aubuisson, the leader of Arena, was named Speaker of the Assembly.

After the first round of the presidential elections on March 25, 1984 failed to secure a majority for either of the two major contenders, Jose Napoleon Duarte (PDC) and Roberto d'Aubuisson, a runoff between them took place on May 6, 1984, in which Duarte emerged the victor. He took office on June 1, 1984, vowing to control official corruption, eliminate right-wing death squads, and continue his commitment to human rights. Civil strife continues, although both sides have agreed to set up a joint commission to discuss peace proposals.

Regional Organization: The country is divided into 14 departments. Each department has a governor and deputy governor who are appointed by the President and are responsible to the Minister of the Interior. The governor keeps the ministry informed of the local situation and supervises activities of the municipalities.

Local authority in each municipality is vested in a municipal council, which is composed of a mayor (alcalde), a legal representative (sindico), and from two to twelve councilmen (regidores), all elected to four-year terms by popular vote. The number of regidores is determined by the size of the municipality's population. Although the national government supplies most of the communities' basic services, the municipalities provide what supplementary services their resources permit.

1.16 Population

Indicators:	Total population (1982)	5.1 million
	Annual growth rate (1970-82)	3.3%
	Projected annual growth rate (1980-2000)	2.6%

Urban population (1982)	42.0%
Urban growth rate	3.4%
Percent of urban population in San Salvador	22.0%
Age structure	
Under 15 years	45.0%
15-64 years	52.0%

Source: World Bank, World Development Report 1984.

El Salvador is the most densely populated country in continental America. Population density has reached 225 people per sq. km (580/sq. mi), three times that of any other mainland country in the hemisphere. This growth has put tremendous pressure on the labor market and resulted in large-scale migration into neighboring Honduras, where land is relatively abundant. Urbanization has also accelerated rapidly, increasing from 25% of the total in 1950 to a current 42%. In metropolitan San Salvador, more than half the population lives in over-crowded inner city tenements or illegal peripheral subdivisions.

With almost half of the country's population under 15 years, growth of the labor force will be rapid, resulting in even greater unemployment and migration.

The least densely populated areas are the northernmost parts of the country comprising the departments of Chalatenango, Morazan, and Cabanas. Urban centers in this area are small and the population is predominately rural. These regions (along with the San Salvador metropolitan area), however, are also the departments most severely affected by the influx of displaced persons. Although estimates vary widely, it is thought that at least 8% of the country's population has been displaced because of internal violence.

See Section 2.8 and 2.9 for information on civil strife and the displaced population, and Appendix B and C for population charts.

1.17 Health

Indicators: (1982)	Birth rate/1,000 population	40
	(down 17.5% from 1960-82)	
	Death rate/1,000 live births	8
	(down 52.1% from 1960-82)	
	Infant mortality/1,000 live births	72
	Child (aged 1-4) mortality	7
	Life expectancy, years	64.5

Source: World Bank, World Development Report 1984.

Health Overview:

The health status of the majority of the Salvadoran population is precarious, although the health care system is relatively extensive. El Salvador is ranked among the countries in the Western Hemisphere most seriously affected by malnutrition. The prevalence of serious malnutrition is greatest in the 1 to 5 age group with a higher incidence found in rural areas than in urban areas. Among children under the age of five, mortality from nutritional deficiencies represents 37% of total deaths in San Salvador and 47% of total deaths in rural areas. According to a July 1984 report from the Ministry of Planning, 53% of children under five were malnourished, and the high incidences of infant deaths were, in many cases, from preventable diseases. (A USAID Health Sector Assessment completed in 1979 and based on the Gomez classification standards, reported a malnutrition rate of 70% among children. Of this group, 20% also suffered from third degree protein-calorie malnutrition.)

The high birth rate also has a serious impact on the health of women and infants. On the average, women have over six children. For the sixth and subsequent births, the infant mortality rate more than doubles from 72 to 160 per 1,000 live births.

The leading causes of morbidity are enteric diseases, respiratory diseases, and malaria. Because the major causes of death (not including casualties due to civil war and the high infant death rate) and illness are gastro-intestinal diseases (infectious

diarrhea, intestinal parasites and dysenteries), the key to improved health is better environmental sanitation. The incidence of virtually all of these diseases could be drastically reduced if measures were introduced to provide adequate and safe water supplies, control waste disposal, and improve food sanitation and caloric intake in both rural and urban areas.

Ten Major Causes of Death, 1980 and 1981

<u>Causes</u>	<u>Numbers</u>	<u>% of Total Deaths</u>
Homicide and injuries	7,973	10.7
Perinatal problems	6,842	9.1
Intestinal infection	4,514	6.0
Other accidents	2,751	3.7
Bronchitis, emphysema, asthma	1,987	2.7
Malignancies	1,906	2.5
Auto accidents	1,850	2.5
Ischemic heart disease	1,670	2.2
Cerebrovascular	1,621	2.2
Other heart disease	1,411	1.9
Total	32,525	43.5%
All Deaths	74,761	100.0%

Source: Displaced Persons in El Salvador, An Assessment, AID, March 1984.

Although the government has placed a high priority on improving the health of the population, the country's health status as a whole has deteriorated since 1978. Violence, an unfavorable economic situation, a decrease in the Ministry of Health's budget, and a growing displaced persons population are the primary contributing factors to this decline.

Diet:

Basic staples for the rural population include corn, sorghum, rice, and black or red beans. These account for approximately 60% of caloric intake, which is supplemented by bread, fruit, fish, and vegetables. Meals tend to be vegetarian and high in starch con-

tent, with meat, poultry, and dairy products only a minor part of the diet. Eating habits in the cities follow the same general pattern except for members of the upper economic strata who can afford European food.

1.18 Economy

Before 1960, El Salvador was primarily a coffee-exporting country. Since then, it has reduced its dependence on coffee by diversifying agriculture and developing an industrial sector. Although the country is still predominantly agricultural, El Salvador is also the most highly industrialized nation in Central America. The creation of the Central American Common Market (CACM) in 1963 stimulated the development of the manufacturing sector, helping El Salvador achieve average real growth during the 1960s and 1970s of more than five percent a year. At the same time, however, the population increased from 2.6 million in 1960 to 4.8 million in 1980. Industry was therefore unable to provide jobs for most new members of the labor force, and the country's limited size and concentration of land ownership stifled opportunities for the growing rural population to become independent landholders.

The deepening socio-political turmoil in recent years has resulted in a deceleration of the economic growth rate. The military leadership installed by the October 1979 coup supported a number of sweeping economic changes, including agrarian reform and nationalization of the financial system and coffee and sugar-marketing operations. However, the economy has continued to suffer and the violence has not abated.

From 1979 to 1982 GDP has fallen by about 25% in real terms. Exports dropped by 40%, and unemployment reached about 40%. The violence triggered large-scale capital flight, reduced public investment by 48% and private investment by 74%. Direct damage to the economy from guerrilla sabotage has been estimated at more than \$800 million since 1979.

Guerrilla strategy includes attacks on basic infrastructure, especially transportation and electrical power centers, as well as attacks on the agricultural sector. In 1983 the economy levelled off, with indication for slightly positive growth in 1984.

Urban unemployment remains high and has increased due to the influx of displaced persons from the regions affected by the fighting. Recovery is hampered by the financial burden of fighting the ongoing civil war. Depressed commodity prices, declining CACM demand for manufactured goods, high interest rates, and the sharp increase in oil prices in 1979-80 have also been costly to the economy.

GDP by Sector, 1982

Agriculture, forestry, fishing	25%
Industry	16
Services	59
Total (\$3,662 million)	100%

GDP per capita (1982) \$720

External public debt (1983): \$955 million

Balance of Payments: The balance of payments was -\$152 million in 1982. Imports amounted to \$826 million and exports to \$704 million. Despite the fall in exports (37.4% since 1979) the balance of payments is considered tolerable because of an equally sharp reduction in imports, mainly in the manufacturing and commerce sectors, and the high level of external financial support.

Imports: Major agricultural imports are wheat, corn, and vegetable oils; other major imports are machinery, petroleum, and raw materials.

Main sources of supply are the U.S. (25.4%), Guatemala (25.1%), Venezuela (8.0%), Costa Rica (4.7%), and Japan (3.4%).

Exports: Major exports are coffee, cotton, sugar, shrimp, and transportation equipment.

Main export markets are W. Germany (33.0%), the U.S. (25.9%), Guatemala (17.7%), Japan (4.8%), and Costa Rica (4.3%).

Source: E.I.U. Quarterly Economic Review, 1984.

1.19 Agriculture

Rural land tenure in El Salvador began to change from communal ownership and subsistence farming to large private holdings around the end of the 19th century, when the highly profitable cultivation of coffee was introduced. This was followed by increased production of sugar and cotton, and consolidation of land holdings into fewer and larger private farm units. One result of this consolidation was the development of a large class of landless peasants and migrant workers until, by 1971, about 40% of the land was concentrated in the hands of about one percent of the owners. Seventy percent of all farmers were sharecroppers, laborers, or owned fewer than five hectares (12.5 acres) of land.

The civilian-military government that came to power in 1979 pledged itself to address the problems of land tenancy and passed a set of sweeping reforms. In March 1980 the largest farms were transformed into agricultural cooperatives and a system of compensation was established for the previous owners. One month later procedures were established to enable sharecroppers and tenant farmers to become the owners of the land they had

worked. These basic reforms were incorporated into El Salvador's new constitution in late 1983, when the Constituent Assembly also established a ceiling on the maximum amount of land that a single owner could hold, giving owners three years to sell land above this limit.

El Salvador has made significant progress towards its goal of more equitable distribution of land ownership and agricultural wealth. Over 93,000 Salvadorans have received land either individually or as members of cooperatives. Including families, more than 560,000 people have benefitted from the agrarian reform, and about 23 percent of El Salvador's total farmland has been transferred to those who previously worked the land but did not own it. More than 12 percent of El Salvador's total population and approximately 25 percent of the rural poor have benefitted.

In light of the land reform's massive reorganization of productive resources, ownership patterns, and established marketing relationships, reduced output was inevitable. It is difficult, however, to segregate the impact of the reform from the impacts of other factors, such as bad weather, depressed international prices, and civil strife. Although total area planted has decreased steadily since the reform's inception (8.1 percent) and average yields for the nation are mixed (but generally down from 1980), the reformed sector's average yields equal or exceed those of the nation as a whole.

About 70% of the total land area (2,139,300 hectares) is arable; 35%-40% is cultivated. Fourteen percent of the cultivated area is under irrigation. The agricultural labor force rose from 617,000 in 1970 to 811,000 in 1980, although in proportion to the total labor force these numbers represent a decrease of 5%. The agricultural sector grew at an annual average rate of 1.7% between 1976 and 1978. However, from 1979, to 1983 it steadily declined, and net output fell by 7.4% in 1982.

Agricultural Production
('000 tons)

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>83-84</u>
Coffee	179	165	150	143	160
Cotton	72	65	41	42	37
Maize	523	527	487	479	483
Sugar	277	179	174	185	300
Dry beans	47	40	38	37	46
Rice	58	61	52	—	41
Sorghum	160	140	138	137	145

Source: EIU Quarterly Economic Review, 1984 and Quarterly Economic Report from El Salvador, January 1984.

Agricultural exports and agriculture for the home market both declined sharply in the period from 1980 to 1982, as volume and prices fell. Coffee, which contributes about 50% of the country's export earnings, has suffered a 22% fall in production since 1979, due to the combined effects of low world prices, high interest rates, credit restrictions for the coffee growers, and bureaucratic delays created by the nationalization of foreign trade. Production of basic grains for local consumption has also fallen steadily, as the area planted has been reduced. The decrease in production of food for the domestic market has resulted in increased food imports. From 1981-1983, food imports rose by 42%, reaching 13% of total imports.

The fishing industry has been expanding and there is a growing domestic demand for fish products. In 1980, fish production amounted to 14,000 tons; exports of shrimp and other fish earned \$24.0 million in 1982.

See Section 2.5 for planting and harvesting dates and crop vulnerability.

1.20 Communications

- Television:** Five stations provide programming to the approximately 300,000 receivers (75,000 color). The government stations are the educational channels, 8 and 10, headquartered at Ap. Postal 4, Nueva San Salvador. There are three commercial stations.
- Radio:** All stations are commercial: 76 medium wave, two short wave, and nine FM, serving 1.49 million receivers. All stations are part of the Asociacion Salvadorena de Empresarios de Radiodifusion, Ap. Postal 210, San Salvador.
- The regulatory agency for telephone, radio, and television is the Administracion Nacional de Telecomunicaciones (ANTEL).
- Telephone:** ANTEL maintains over 65,000 lines with automatic control switching and provides services to 261 municipalities. As of January 1982, there were 86,316 telephones in the country, 54,000 of which were in the capital. Overseas calls to the U.S. can be made easily and quickly except during peak weekend hours.

1.21 Transportation

- Ports:** The Port Authority, CEPA, operates and administers El Salvador's two ports, Acajutla and Cutuco. It also manages the national railroad system, FENADESAL, and the El Salvador International Airport.
- Cutuco handles principally coffee and cotton, and is accessible only by rail. Acajutla is the main port and also serves Guatemala. It is located about 85 km southwest of San Salvador.

See also Section 3.7, Ports.

- Railroads:** Two private railroad firms merged in 1975 to form the government-run FENADESAL. The rail network comprises 602 km of main track, connecting the capital with both ports and with all principal cities. It also connects with the railroads of Guatemala, reaching Guatemala City as well as Puerto Barrios on the Atlantic coast. All track is 0.914 meter gauge, single-track (narrow gauge and light weight). In 1981, FENADESAL operated 19 locomotives and 660 units of rolling stock.
- Road Network:** El Salvador has a good road system that is well integrated with railway service. It has, however, suffered deterioration through lack of maintenance and subversive action that has destroyed a number of bridges. The Pan-American Highway bisects the country, running east-west for 625 km. It is the most heavily traveled road, as it connects the major cities of Santa Ana, San Salvador, and San Miguel. The second major road is the Littoral Highway, which parallels the coast. Seven paved, all-weather roads connect these two main highways; another runs north from San Salvador to the Honduran town of Nueva Ocotepeque, but is not currently heavily traveled as it runs through guerrilla-controlled territory. In 1983 there were 10,839 km of classified roads, of which about half were all-weather. Registered passenger cars totaled 78,000 and commercial vehicles 58,200 in 1979.
- Airports:** The El Salvador International Airport began operating in January 1980, replacing the older international airport at Ilopango. Ilopango is now a military airbase. The new airport is located at Comalapa, about 15 km or 30 minutes by road southeast of San Salvador, with access to the city through an excellent four-lane highway. It is ten minutes from the beach area and has connecting roads to the Pan American Highway and the Littoral Highway.
- There are no other major or secondary airports. There are, however, numerous small grass landing strips located throughout the country, especially in the eastern cotton-growing areas where aerial crop dusting is common.

See also Section 3.8, Airports.

Airlines:

AESA Aerolineas de El Salvador provides cargo and mail service between San Salvador and Miami.

TACA International Airlines provides passenger and cargo services to Belize, Costa Rica, Guatemala, Mexico, Honduras, and the U.S.

With the demise of Air Florida, Capital Airlines is the only U.S. airline flying to El Salvador.

2. Disaster Vulnerability

2.1 Overview of the Physical Environment

Two parallel chains of volcanoes extend east-west through El Salvador. The southern or Coastal Range contains the highest peak (Volcan Santa Ana, 2,340 m) while the northern or Sierra Madre Range is lower and less continuous. The mountains divide the country into three physical zones based primarily on elevation. The southern coastal plain, or tierra caliente (torrid land) is a narrow flat belt bordered by the Coastal Range. The central highlands, or tierra templada (temperate land), lies between the two ranges. This plateau, about 600 m high, comprises most of the country. It decreases in elevation toward the east and is dotted with volcanic cones and deeply cut by streams. Small basins are found scattered in this region, some filled with water, others with volcanic ash. This area is subject to frequent volcanic eruptions and earthquakes. The third zone is the northern lowlands, located north of the Sierra Madre and formed by the Rio Lempa Valley.

The coastal lowlands are characterized by large areas of swampland, humid forests, and semi-humid savannas. In the Central Plateau and the Lempa River Valley evergreen forests and chaparral are common, though much of the land has been cleared for farming and livestock grazing. The highlands of the Coastal Range and the Sierra Madre are characterized by varied vegetation according to altitude. Semi-humid forest covers most of the land below 800 m. Between 800 m and 1,800 m oak and pine forests can be found, though most of this land is used for coffee growing and pasturage.

The 257-km Rio Lempa is El Salvador's main river and the largest in Central America. It rises in the rugged hill country of Guatemala, crosses a corner of Honduras, and cuts across the northern mountains of El Salvador before turning eastward for about 129 km. It then turns sharply south and flows 105 km across the volcanic highlands to the Pacific. In the rainy season the river floods in many places, but during the dry season many sections are almost dry. The river is navigable for only short, disconnected stretches, the longest up to 40 km for shallow-draft vessels. The Rio Lempa connects with an irregular network of about 150 streams and minor waterways, all of which eventually empty into the Pacific.

Two other river systems drain small portions of the west and east. The Rio Paz on the Guatemalan border drains the western end of the coastal plain, and the Rio San Miguel does the same in the east. There are several large lakes and lagoons, the principal ones being Lake Ilopango near San Salvador and Lake Guija on the Guatemalan border. Many other small lakes, lagoons, and sulfur springs are scattered over the countryside.

2.2 Tropical Storms and Floods

Tropical depressions are frequent during September. They follow a path parallel to the Pacific coast, sometimes increasing in force to become tropical storms or hurricanes when they reach median latitudes. They produce heavy rains, known as temporales, which may last up to five days.

In 1982, a depression moved inland, causing extensive damage to San Salvador and the departments of Ahuachapán and Sonsonate, as well as several departments in Guatemala. Rainfall in the San Salvador area reached nearly 400 mm in 18 hours and 500 mm in the western part of the country, more than 20% of average annual rainfall. Winds of up to 90 km per hour uprooted trees in the higher areas and produced waves four to five meters high along the western shoreline. Rapid saturation of soil (already loosened by a recent earthquake and further damaged by an intense dry spell) and strong winds caused heavy runoff, which eroded large areas and swept away rocks and trees. Approximately 14,000 sq. km of land were severely flooded, resulting in extensive damage to property and crops.

In the highlands, heavy flooding and mud flows in rivers and streams washed away valuable soil in coffee cultivation areas. Toward the flatter coastal plain, rivers overflowed their banks and inundated the adjacent cropland. The Paz River, on the border between El Salvador and Guatemala, altered its course, destroying a connecting bridge in Hachadura.

In San Salvador, the upland areas around the city received the full impact of the winds and intense rains. The volcanoes and steep mountains above the city have been cleared of forest land, and the soil is unstable. Mud flows formed rapidly and swept into the city below, burying hundreds of homes. Colonia Montebello, a new urban district northwest of the city, suffered the most devastating of many landslides, when the skirts of the San Salvador Volcano collapsed under the downpour and deposited more than 225 cubic meters of mud and soil on the area. The potential for similar mud flows threatens many districts around San Salvador.

El Salvador is out of the path of both the Gulf of Mexico and the Pacific hurricanes. It does however, occasionally suffer from the fringe effect of tropical storms from the north that damage crops and houses. The only recent major hurricane was Hurricane Francelia in 1969, which affected 4,600 people and caused an estimated \$1.6 million in damage.

2.3 Seismicity

El Salvador is situated along a fault line where two plates of the earth's crust meet. The western, or East Pacific, plate is shifting slowly southeast and is being overridden by the Southern Caribbean plate.

As long as the plates can shift sideways relative to one another there is no problem, but when the movement is hindered for a few years or decades, an earthquake occurs.

The country has a long history of destructive earthquakes. San Salvador has been destroyed or badly damaged more than a dozen times since 1524 when recordkeeping began. Earthquakes have been recorded in 1575, 1594, 1671, 1719, 1798, 1806, 1815, 1839, 1854, 1873, 1917, 1951, 1965, and most recently on June 19, 1982. Preliminary results of studies show that the greatest earthquake risk comes from shallow faults along the chain of active volcanoes rather than the deeper more distant interplate zone near the Pacific Coast.

The 1982 earthquake registered 7.0 on the Richter scale. It shook the central-western part of the country, causing damage or destruction to many rural and urban homes and buildings, killing 20 and leaving about 2,500 homeless. Water, electric power, and telephone services were disrupted, and landslides blocked main highways and railroad lines.

2.4 Volcanoes

El Salvador has 180 volcanoes; however, only eight have shown significant activity in historic times.

Santa Ana: Violent eruptions in 1576, 1847, and 1880; mild eruptions in 1904 and 1937; active fumaroles (gas and smoke vents) until 1955.

Izalco: Formed since 1770 by very frequent eruptions, last major eruption in 1926; known as "Lighthouse of the Pacific" for the visibility of its flares from offshore.

San Marcelino: Eruptions in the 17th century and in 1722.

San Salvador: Crater lake drained in 1917 by seismic disturbance and eruption, with formation of small cinder cone and lava flow.

San Vicente: Active fumaroles.

Tecapa: Active fumaroles.

Chinameca: Active fumaroles.

San Miguel: Frequent eruptions since 1586; major eruption in 1787 formed lava flow now called La Malpaicera; last major eruption in 1844.

The principal zone of earthquakes in Central America coincides with the zone of recent volcanic activity. Both volcanic and seismic activity in El Salvador are caused by movements along the same fault line. (See map on the following page).

2.5 Drought

During the months of July and August, in the middle of the rainy season, a dry spell (called the canicula) occurs that usually lasts between ten and twenty days. During this time there is not enough rainfall to satisfy crop water requirements, and plant survival depends on water stored underground. If the canicula is unusually long or severe, as it was in 1972, 1976, and in 1982 in the eastern part of the country, crop damage can be heavy. In 1982, soil water storage was not sufficient to meet crop demands, especially corn, rice, and cotton. Some crops were either lost entirely or their yield drastically diminished.

2.6 Agricultural Vulnerability

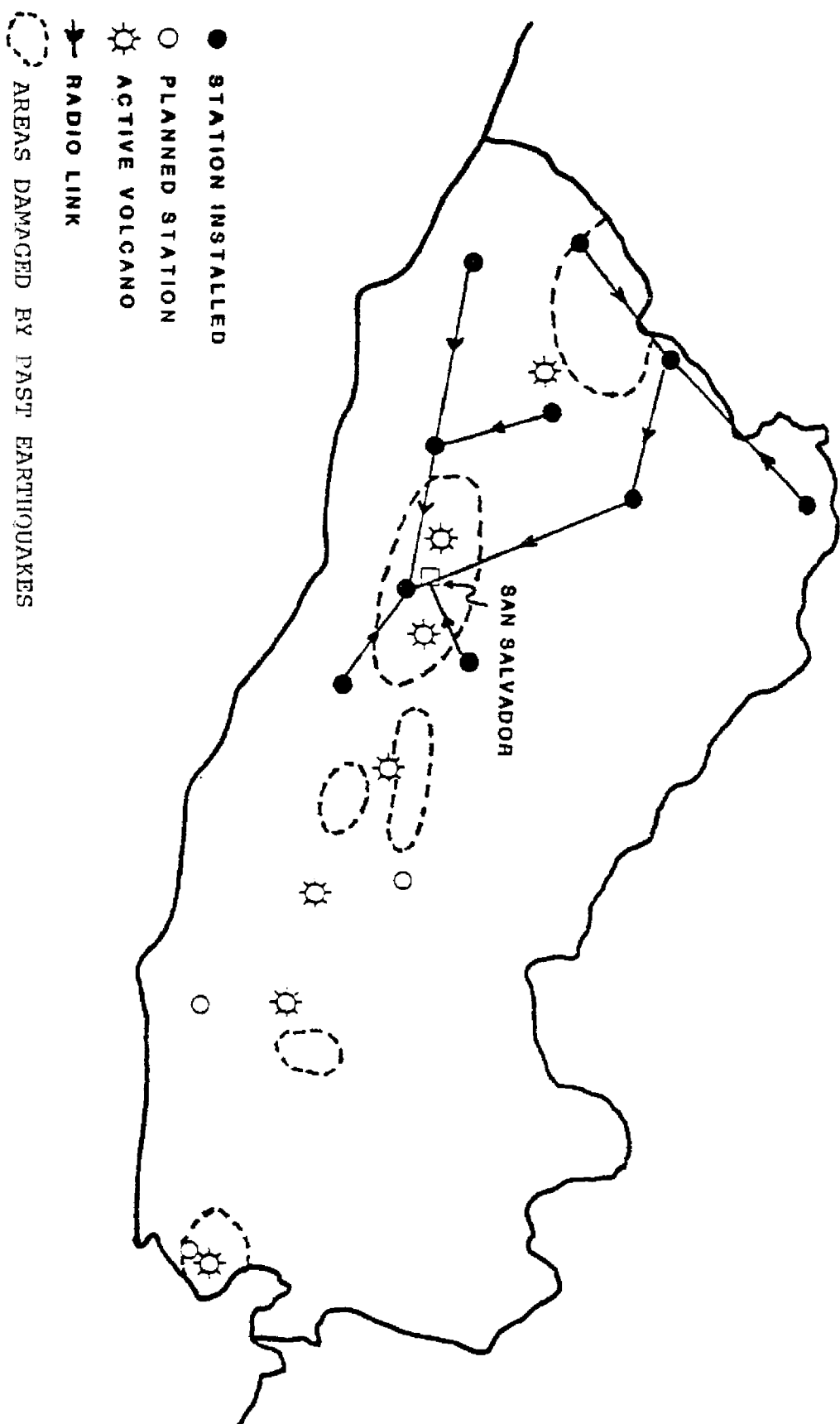
The agricultural system is dualistic. Commercial farming of the major export crops (coffee, cotton, and sugar) is practiced on the best lands by the upper classes. The farms are concentrated in large continuous tracts on the Coastal Range and the Coastal Lowlands. Subsistence cultivation on small hillside plots by the bulk of the rural population produces most of the food crops. (See p. 23 for a chart of planting and harvesting dates.) These plots are usually found on the less desirable steeper slopes.

Cultivation practices vary widely from one crop to another. Because coffee is grown on mountain slopes under shade trees, the use of machinery is difficult and growers depend instead on semi-skilled labor. In contrast, machinery is essential in cotton farming, and fertilizers and insect and disease control measures are also used. The heavy use of pesticides in cotton production has resulted in damaged soil and serious health problems. El Salvador has the highest rate of pesticide poisoning in Central America.

Land in El Salvador is in short supply, and most of the better acreage is intensively cultivated. Yields of coffee and cotton are among the highest in the world, due in part to the fertile volcanic soil. Overall, about 40% of the country's land area is cropland, 25% of which is devoted to coffee.

The vast majority of farms are extremely small. In 1970, 91% were under 22 hectares (utilizing 22% of total farmland) while only 0.1% were over 500 hectares (utilizing 24% of farmland). The highest proportion of land under cultivation is along the Pacific coast.

SEISMOGRAPH NETWORK AND VOLCANIC ACTIVITY



Source: Progress Report of Earthquake Hazards Reduction Program (Harlow, 1984)

In 1980, implementation of the Agrarian Reform Law substantially affected the structure of the agrarian sector. At that time, the Salvadoran Agrarian Transformation Institute (ISTA) expropriated 270 farms of more than 500 hectares each, covering a total area of 216,000 hectares. These farms were devoted to export crops and stockraising, and accounted for about 15% of arable land, including some of the country's most fertile acreage.

Another important reform was the establishment of government monopolies for sugar and coffee. The National Sugar Institute also assumed responsibility for the management of some large sugar mills. These institutional changes, along with financing, labor, weather, and input supply problems, adversely affected the development of agricultural activities: GDP declined, and sugarcane and coffee production fell. The output of basic grains was more favorable than that of export crops, as small holdings were not subject to the agrarian reform.

The following information is from the Climate Impact Assessment Methods for Drought/Food Shortage Early Warning in Central America: Final Report, produced by NOAA and the University of Missouri, 1983.

Adverse Impact on Crop Conditions and Food Security

<u>DATE</u>	<u>EVENT</u>
1957	Drought affected crops.
1963-64	Limited land resources, urban population movement, and shifts to export crop production continued.
1964-65	Disease affected rice and bean crops.
1967	A slow start of the summer rainy season adversely affected crop production in some Pacific coastal areas.
1968	Hot, dry weather adversely affected food crops in the eastern area of the country.
1972	June and July were very dry and there were great losses to agriculture.
1974	Drought during July and August in the south and flooding in June at Pasaquina reduced corn, bean, and rice production.
1975	Drought cut sugarcane yields and floods affected cereals when Hurricane Fifi struck in January.
1976	A one-month drought occurring in the middle of the rainy season lowered yields of grain and other basic food crops.

1977	Severe June storms affected foodcrops in San Vicente, La Paz and Usulután and a midyear drought caused sharp drops in coffee and rice harvests.
1978	Dry conditions continued in the Pacific coastal area. The persistent dry weather and accompanying drought cut back production.
1979	Capital and labor shortages affected agricultural production, especially cotton, coffee, and sugar. Coffee rust occurred near Usulután. Floods during September on the Caribbean coast destroyed crops.
1979	Sugarcane rust caused serious production problems.
1980	Agrarian reform and civil disturbances affected crop production.
Oct. 1981	Area sown with corn and sorghum was reduced because of civil disturbances. Emergency food assistance (maize, dried skim milk, and vegoil) was provided by the World Food Program.
Apr. 1982	Emergency food assistance was extended for another 4 months.
Sept. 1982	Mid-month floods occurred around San Salvador and coastal departments severely damaging agriculture.

Estimated Regional Crop Calendar for Subsistence Farming

H-Harvesting X-Vegetative/Flowering P-Planting

<u>Crop</u>	<u>J</u>	<u>F</u>	<u>M</u>	<u>A</u>	<u>M</u>	<u>J</u>	<u>J</u>	<u>A</u>	<u>S</u>	<u>O</u>	<u>N</u>	<u>D</u>	<u>Comments</u>
Corn					P	PX	X	H	H				Winter crop (rainy season)
	H									P	PX	X	Summer crop (dry season)
Beans					P	PX	XH	H					Matures in 65-85 days.
Rice					P	P	X	X	X	P	P		
Wheat				P	PX	X	X	H	H				
Sorghum				P	P	X	X	X	X	X	H	H	Cultivated in coastal areas.
Sugarcane	H	H	H	X	X	X	X	X	X	X	H	H	Cultivated in highlands.
Bananas	H	H	H	H	H	H	H	H	H	H	H	H	
Potatoes	H	H	H	H	H	H	H	H	H	H	H	H	

2.7 Civil Strife

The inequitable distribution of income in El Salvador, historically skewed in favor of a small minority, is the underlying factor in the civil strife that has torn the country since 1979. In the year prior to the October 1979 coup, which replaced a right-wing military regime with a reformist civilian-military junta, open opposition to the government by leftist insurgents had increased. A program of socio-economic reforms failed, however, to appease the extreme left whose tactics since the beginning of 1981 have concentrated on terrorism and guerrilla warfare. As the confrontation between government forces and the rebels intensified, an extreme right wing paramilitary faction, intent on restoring the old order, engaged increasingly in retaliatory terrorism. The escalating violence in the countryside resulted in the deaths of thousands of civilians and the dislocation of hundreds of thousands of others. The violence continued undiminished following Constituent Assembly elections in March 1982 and the establishment of a provisional government of national unity.

The new constitution, approved in December 1983, paved the way for the transition to an elected government. The conflict has continued, however, causing considerable damage to infrastructure (especially power installations, roads, and bridges) as a result of terrorist activity and combat. The violence has also contributed to high unemployment and declining GNP due to capital flight and the disruption of industrial and agricultural production. Only recently, in 1983, has the decline in economic activity ceased and capital flight been reduced.

2.8 Displaced Persons

The displaced persons phenomenon first appeared in January 1980 as rural people caught in conflict zones began to leave their homes and possessions to seek protection in urban areas. The departments near the Honduran border, where leftist guerrillas had their strongest positions, were the most seriously affected initially. The area of conflict spread from the departments of Morazan, Cabanas, and Chalatenango to include San Miguel, San Salvador, San Vicente, Usulután, and Cuscatlán. Eventually, some civilians were displaced in all fourteen departments of the country.

There are no precise figures on the number of people affected. The number of displaced has changed constantly as new areas have become combat zones and others have been "pacified". Also, many displaced persons did not register with the government for assistance until the economy had deteriorated to a point where they could no longer be supported by their extended families. The trend, however, is generally upward. USAID estimates show that the number grew from 46,000 in September 1980, to 200,000 in November 1981, 248,000 in September 1982, and 500,000 by April 1984. By that date, there were 390,000 displaced persons registered with the government and receiving assistance. Another 150,000 to 200,000 nonregistered displaced persons were being cared for

by voluntary agencies. In addition to those who have been internally displaced or stranded in troubled areas, thousands of people have fled the country to escape the fighting or the threat of political persecution.

Approximately 75 to 80 percent of the displaced persons within the country are dispersed throughout the population, occupying houses or rooms provided by family or friends or squatting in abandoned buildings. The others reside in communal shelters (initially schools, churches, and makeshift camps and later, camp-like settlements). A small minority live in unsheltered conditions. Most people are eager to return to their homes when it is considered safe to do so. Not infrequently, however, they are forced to flee again. A few are able to work their land by day and return to the shelters at night.

The lack of employment opportunities for the displaced, and the consequent reduction of their purchasing power, has emerged as a major problem. Another serious concern has been the marked increase in health problems. Poor living conditions in some of the accommodations -- overcrowding, and a lack of potable water, sanitation, and adequate clothing -- have been blamed for the dramatic rise in illness among the displaced persons. According to epidemiological reports of the Ministry of Health, the incidence of some communicable diseases had increased over 400% as of December 1981. A 1982 study conducted by the government relief agency found that the mortality rate among the displaced population was 22.4 per 1,000 in 1981. This rate was 3.4 times the national average of 6.5 per 1,000.

The displaced persons situation is constantly changing. Toward the end of April 1984, there were reports of significant increases and movements of displaced persons and returning refugees in the departments of Morazan, San Miguel, and La Union. Approximately 1,400 Salvadoran refugees had returned from Honduras, citing the relocation of the Honduran refugee camps away from the border as the reason for their return. Additionally, an estimated 5,000 people had fled their villages in northern Morazan and San Miguel, reportedly to escape conscription or pressure to support the guerrillas.

A comprehensive study of the displaced was conducted by an AID/Department of State team in January 1984. The results were published in "Displaced Persons in El Salvador, An Assessment," March 1984. The report assessed health, nutrition, food assistance programs, the AID Jobs Program, camp conditions, the status of dispersed displaced persons, and other issues. The conclusions of the assessment team are summarized in the report's Executive Summary (See Appendix D). See Section 3.11 for information on emergency programs for the displaced.

2.9 Disaster History

<u>Disaster</u>	<u>Location</u>	<u>Date</u>	<u>No. Killed</u>	<u>No. Affected ('000)</u>
Earthquake	Jacuapa	5/06/51	1,000	n.a.
Earthquake	San Salvador region	5/03/65	125	90,582
Equine Encephalitis	SW to NW	6/00/69	12	19
Border Conflict	Honduran border	7/14/69	n.a.	22,000
Hurricane	Rio Lempa & SW Coast	9/04/69	2	4,600
Civil Strife	Widespread	3/20/80	n.a.	n.a.
Civil Strife	Widespread	10/24/80	10,000	80,000
Power Shortage	Eastern region	8/31/81	n.a.	990,000
Civil Strife/ Displaced Persons	Widespread	3/11/82	20,000	248,000
Earthquake Flood/	Five departments	7/01/82	20	30,000
Torrential Rain	Sonsonate/Ahuachapan	9/17/82	500	50,000
Civil Strife/ Displaced Persons	San Miguel/Morazan	5/30/84	n.a.	6,400

Source: OFDA Disaster History on file in Washington, D.C. Covers 1900 to the present.