

5. Health, Nutrition, and Housing5.1 Common Diseases

Main nutrition, unsafe water, poor sanitation, overcrowded housing, and insufficient medical care enhance transmission and aggravate the effects of major communicable diseases: enteritis and other diarrheal diseases, malaria, whooping cough, measles. The incidence of dysenteries and malaria are among the highest in the Americas, as is the death rate for whooping cough. The prevalence of intestinal worms, of which ascaris, trichurus, and hookworm are the most common, ranged in different age groups from 20-80% in both urban and rural areas (in 1965-67 survey). Viral encephalitis (epidemic in 1969) and American Trypanosomiasis (52 cases reported in 1971) are potential threats as long as no vector control is practiced. Both poliomyelitis and typhoid fever are endemic, especially in the northeast lowlands, though no major outbreaks have occurred in the last decade. Rabies is reportedly a problem in some localities: 50 persons were bitten by rabid dogs in Tegucigalpa during a 3 month period in 1974.

Note - In banana plantation areas, widespread plant disease necessitates extensive spraying of trees, which may affect the health of workers. Virtually the entire population in these areas is infected with ascaris (roundworms); about 40% have amoebic dysentery.

Incidences of the Most Common Diseases During the Period of  
January to July of 1975 In the Seven Health Regions

	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>	<u>V</u>	<u>VI</u>	<u>VII</u>	<u>Total</u>
Amoebic dysentery	3,871	1,651	865	1,506	1,176	563	628	10,260
Bacillary dysentery	247	162	995	105	634	265	83	2,491
Diarrhetic diseases (Gastro- enteritis)	14,546	7,541	11,367	7,873	7,729	7,066	3,413	59,535
Typhoid fever	67	137	31	38	100	17	12	402
Measles	158	202	816	180	435	388	56	2,235
Whooping cough	781	513	522	430	267	237	187	2,937
Total	19,670	10,206	14,596	10,132	10,341	8,536	4,379	77,860

## Note:

- I - Francisco Morazan, El Paraiso, Gracias A Dios, Yoro (Southern)
- II - Comayagua, La Paz, Intibuca
- III - Santa Barbara, Cortes, Yoro (Central, Western)
- IV - Choluteca, Valley, La Paz (Southern)
- V - Copan, Lempira, Ocotepeque
- VI - Atlantida, Colon, Yoro (Northern), Islas de la Bahia
- VII - Olancho

5.2 Vital Statistics (1978)

Crude birth rate	47/1,000 population
Crude death rate	12/1,000 population
Infant mortality	118/1,000 live births
Mortality ages 1-4	14/1,000 population
Life expectancy at birth	57 years

Source: World Bank Development Report, 1980.

5.3 Health Facilities and Services

Approximately half of the population had no access to health care in 1978. However, the GOH plans to expand health care coverage and has begun development of a network of facilities to be located throughout the country's seven health regions. A teaching hospital, at the top of the stratified system, has been completed in Tegucigalpa which, with the adjacent Materno-infantil Hospital, has approximately 1,200 beds. Three regional hospitals (with varied specialties) are being built in San Pedro Sula, Choluteca, and Comayagua. The largest (500 beds), providing such sophisticated services as an intensive care unit, will be in San Pedro Sula. Central emergency hospitals (CHE's) having 50-100 beds each, staffed with doctors, and providing general medical care, are to be located in Tocoa, Olancho, San Lorenzo, La Esperanza, San Marcos y Gracias, El Progreso, and Cortes. Health centers (CESAME's), with a physician in charge, and rural health units (CESARE's), staffed by auxiliary personnel, will provide outpatient and preventive health care. 79 rural health units had been completed by 1978 and 40 were under construction. The community itself is the primary level of health care served by a volunteer health guardian, a midwife, and a health representative. Private facilities include missionary hospitals and a hospital of the Standard Fruit Co. in La Ceiba.

<u>Region</u>	<u>Location</u>	<u>Regional Chief</u>	<u>Telephone</u>
I	Centro de Salud Alonso Suazo, Bo Morazan Tegucigalpa, D.C.	Dr. Manuel Alfredo Lelva	26-6105
II	Comayagua, Comayagua	Dr. Jose Adrian Chavarria	52-3212
III	Hospital Leonardo Martinez	Dr. Humberto Pineda Santos	
IV	Hospital Del Sur, Choluteca, Choluteca	Dr. Oscar Antonio Molina	82-0241
V	Centro de Salud Santa Rosa de Copan, Copan	Dr. Alberto Hernandez Santos	62-0095
VI	La Ceiba, Atlantida	Dr. Maria Del Carmen Miranda	42-2595
VII	Juticalpa, Olancho metropolitan region (includes hospitals, health centers, etc. in Tegucigalpa), Centro de Salud Alonso Suazo	Dr. Ubence Calix Dr. Maria Santos de Aviles	22-8555 Ext-280

#### Major Public Hospitals

<u>Name</u>	<u>Location</u>	<u>Director</u>	<u>Tel.</u>	<u>Beds</u>	<u>Ambulance</u>
Materno Infantil	Tegucigalpa, D.C.	Dr. Carlos Medina	22-4646	487	1
San Felipe	Tegucigalpa, D.C.	Dr. Manuel Rivera	22-8457	684	-
Instituto Nacional Del Torax	Anexo San Felipe, Teg.	Dr. Daniel Mencia	22-9096	373	
Neuro Psiquiatrico	Colonia Miramontes, Teg.	Dr. Dagoberto Mourra	22-6327	51	-
Santa Rosita	Tamara	Dr. Emerito Pacheco	22-4141	300	-
Fabriela Alvarado	Danli	Dr. Roberto Ortiz	93-2021	45	-
Santa Teresa	Comayagua	Dr. Antonio Suazo	72-0094	92	-
Leonardo Martinez	San Pedro Suia	Dr. Reynaldo Urtecho	52-1400	286	-
Santa Barbara Integrado	Santa Barbara	Dr. Juan De Dios Paredes	-	123	-
Manuel de Jesus Subirana	Yoro	Dr. Saul Calix	-	47	-

Hospital del Sur	Choluteca	Dr. Maurice Perez	82-0231	156	2
Hospital de Occidente	Sta Rosa de Copan	Dr. Rodolfo Torres	62-0107	211	-
Atlantida Integrado	La Ceiba Atlantida	Dr. Jose Matta Reyes	42-2294	95	-
Salvador Paredes	Trujillo	Dr. Rodriguez	-	50	-
Hospital de Tela	Tela	Dr. Ruben Martinez	48-2073	45	-
San Francisco Isletas	Juticalpa Colon	Dr. Ferrufino Paz	-	59	1
Tocoa	Colon	Dr. Jose Salazar	-	56	-
I.H.S.S.	Colon	Dr. Pastor Ramirez	-	30	-
I.H.S.S.	Tegucigalpa	Dr. Humberto Rivera M.	22-1124/	183	6
I.H.S.S.	San Pedro	Dr. Carlos A. Pineda	-	89	4

Only Hospital San Felipe (Tegucigalpa) and Leonardo Martinez (SPS) have special equipment for chest and brain surgery.

The General Director of the Public Health Department is Dr. Carlos Godoy Arteaga and the Director of Division III (North Coast) is Dr. Humberto Pineda Santos, (office in Hospital Leonardo Martinez. Telephone: 52-3699).

#### Major Private Clinics

<u>Name</u>	<u>Location</u>	<u>Director</u>	<u>Tel</u>	<u>Beds</u>
Policlínica	Comayagua D.C.	Dr. Manuel Echeverría	22-3504/5	50
Hospital Viera	Tegucigalpa D.C.	Dr. Juan Andonie	22-0820	50
El Carmen	Tegucigalpa D.C.	Dr. Augusto Caceres	22-2681	20
Centro Medico Simos	Comayagua D.C.	Dr. Virgilio Banegas	22-7494	20
Hondureno	San Pedro Sula	Dr. Cuzano		20
Bendana	San Pedro Sula	Dr. Irias		20
Villas	San Pedro Sula	Dr. Bendana		50
Clinica Evangelica	Comayagua	Dr. Villas		20
Clinica Ferguson	Siquatepeque	Dr. Sierra		20
Clinica Canahuati	Choluteca	Dr. Ferguson		20
Centro America	Choluteca	Dr. Canahuati		20
	Juticalpa	Dr. Bulmond		20

Ministry of Health Rural Health Centers - 1976

<u>Department</u>	<u>Cesar *</u>	<u>Cesamo **</u>
Francisco Morazan	27	11
Atlantida	13	3
Colon	15	2
Comayagua	19	5
Copan	13	4
Cortes	25	7
Choluteca	27	5
El Paraiso	21	3
Gracias a Dios	2	1
Intibuca	12	3
Islas de la Bahia	0	2
La Paz	21	3
Ocotepeque	6	2
Olancho	18	6
Santa Barbara	21	10
Valle	11	6
Yoro	18	6
Total	<u>290</u>	<u>80</u>

\* Cesar - rural health center

\*\* Cesamo - health center with doctor

#### 5.4 Health Personnel

Human resources in the health sector are limited: 780 physicians (2.9/10,000 population) and 199 dentists (0.7/10,000 population) in 1972, 316 graduate nurses (1.1/10,000 population) and 1,647 nursing auxiliaries (5.9/10,000 population) in 1973.\* Tegucigalpa, which has 11% of the total population, has 54% of country's physicians. Rural population has minimal access to medical care, if any. Annual output of medical personnel (circa 1976): 25 physicians, 35 nurses, and 150-200 auxiliary nurses. Half the Honduran doctors who go abroad for advanced studies do not return.

\* Population per physician in 1977: 3,420; per nursing person: 1,240.

The national health services program, begun in 1975, includes plans to build over 200 rural health centers, to be staffed by nursing auxiliaries with periodic visits by physicians and nurses from 1 of 8 emergency hospital centers. Lack of manpower is the major impediment to implementation. During 1975-1980, the program would have required an annual addition of 300 auxiliaries, 55 nurses, and 30 medical technicians; current training programs cannot meet this demand.

### 5.5 Diet Summary

The main staple is white maize (except in the northern part of the country where it is rice and bananas). Rice consumption is increasing generally, and wheat bread is popular in the cities.

The three daily meals consist typically of rice, red or black beans, and corn or sorghum tortillas. Meat (beef or pork) is eaten only rarely. All meals are similar in content and size. Children's diet is similar to adult's but somewhat lower in protein; milk intake falls off after one year of age and consumption of eggs, meat, and beans is not great enough to compensate for the decrease.

### 5.6 Staple Foods

**Flour:** Corn or sorghum made into tortillas (10-15 daily is the average consumption).

**Vegetables:** Beans, onions, garlic, chilies, yucca, tomatoes in season; occasionally greens; potatoes in higher altitudes.

**Fruits:** Plantains, bananas, grapefruit, mangoes, chayote, guavas, lemons.

**Cooking Oil:** Pork lard, cottonseed oil, coconut oil.

**Milk:** Rarely cow's milk; occasionally dry white cheese.

**Meat:** Beef, pork (preferred), chicken (rarely 2 a month per family), lizard (10/year), some goat meat.

**Fish:** Rare in inland areas; fresh fish very common on north and south coasts.

**Starches:** Rice, yucca, white wheat bread in cities.

Sweets: Brown sugar in cake form (panela) furnishes significant number of calories (av. 225/day in 1962).

Beverages: Unboiled spring or river water and sweetened coffee; soft drinks (refrescos).

### 5.7 Nutritional Deficiencies

Malnutrition is severe, with an estimated three quarters of pre-school children suffering from protein and caloric deficiencies; 67% of all Hondurans have diets somewhat deficient in calories and 43% receive inadequate amounts of protein. Anemia is widespread in pregnant women and children (of both dietary and parasitic etiology), and Vitamin A deficiency is particularly common among rural children.

### 5.8 Cooking/Utensils

Cooking is done inside the house with earthenware crocks on wood-fueled clay stoves. Food is eaten with fingers or tortillas. Soup is drunk from earthenware bowls, beverages from crockery or plastic cups.

### 5.9 Overview of Housing

In the past rural to urban migration in Honduras has been relatively limited compared to other Central American countries. In 1980 only 36% of the Honduran population was urban, in contrast to 53% in Nicaragua, 43% in Costa Rica, 41% in El Salvador, and 39% in Guatemala. However, in recent years the annual urban growth rate has been increasing (average of 5.5% p.a. during 1970-80). The general pattern of migration is south to north with San Pedro Sula the fastest growing urban area. Over the years the northern coastal and lowland areas have experienced the most population growth due to employment opportunities offered by two fruit companies. As both companies expanded, they could offer services such as housing, education, and medical facilities which were unavailable in the rest of the country.

Highland settlements range from large urban centers (Tegucigalpa, Comayagua, Copan) to small villages which have grown up around local agricultural, lumber, and mining enterprises, to isolated subsistence farms which are scattered throughout the mountainous areas in the west and southwest. Also characteristic of this area are large agricultural estates

where workers' housing is provided by the landowner. Overall, the population of Honduras is distributed very unevenly. While rapid growth is occurring in a corridor which includes La Ceiba, Tela, Puerto Cortes, San Pedro Sula, Siguatepeque, Comayagua, Tegucigalpa, and Choluteca, other areas (particularly in the east) are under-settled or even devoid of population.

#### 5.10 Housing Policy and Institutions

The National Housing Plan clearly distinguishes between rural and urban housing with greater emphasis placed on the former. The rural housing program is being coordinated with the development of new rural settlements through the agrarian reform program. Use of local construction materials and aided self-help housing methods are stressed. However, to date little progress has occurred in the rural sector. In urban areas the trend is toward decentralization and the development of secondary cities. Greater participation by the public sector in urban areas is encouraged. The National Housing Agency (INVA) is the main implementing agency for both urban and rural housing in the public sector. The National Board for Social Welfare is responsible for rural housing improvement programs.

##### Role of the Government of Honduras

- . Provides financial support to INVA
- . Creates public bodies related to housing as well as semi-autonomous banks and other financial and technical institutions
- . Supports the creation and development of private organizations such as the Honduran Cooperative Housing Federation (FEHCOVIL) and savings and loan associations
- . Sets housing policy and makes regulations for the housing industry as a whole

Honduran National Housing Institute (INVA) - autonomous public agency charged with carrying out the national housing plan. It is responsible for the development of housing for low to moderate income families throughout the country, though most projects have been located in Tegucigalpa and San Pedro Sula; no rural projects have been built by INVA. Principal sources of income have been the government and the InterAmerican Development Bank.

National Agrarian Institute (INA) - principal agency for land reform and agricultural development. Collaborates with INVA by designating sites eligible for housing programs and providing non-technical assistance.



Asociacion Por Desarrollo Humano - a private institution involved in low cost housing. Usual construction technique is a primitive wooden frame modular which has found wide local acceptance. Funding comes from overseas grants and locally raised capital.

Federation of Credit Unions of Honduras (FACACH) - private group involved in two low cost semi-urban housing projects.

Three private groups have been involved in middle income housing: the savings and loan association system; Banco Hipotecario, a commercial bank; and the Honduran Cooperative Housing Federation (FEHCOVIL). FEHCOVIL has been assisted by A.I.D. since its inception in 1963. Two unions, the Federacion de Sindicatos de Trabajadores del Norte de Honduras (FESITRANH) and the Sindicato de Trabajadores de la Tela Railroad Company (SITRATERCO) have sponsored housing in the San Pedro Sula area for lower middle income families.

### City Planning

City planning and zoning regulations are the responsibility of municipal governments. However, financial constraints and a lack of trained personnel in the municipalities have prompted the national government to organize a Department of Urban Planning (Direccion General de Urbanismo) to assist local governments in preparing master plans.

## 5.11 Disaster/Low-cost Housing

### Effects of Natural Disasters on Housing

The lack of adequate housing affects roughly one million Hondurans (over one-third of the population), most with very low incomes. Besides the general deficit of housing stock which increases year after year, the housing situation has worsened since 1974 due to a series of natural disasters. Disaster vulnerability in Honduras is overwhelmingly related to floods like those that accompanied Hurricane Fifi in September 1974. An estimated 15,000 housing units were destroyed. Most of those destroyed were rural huts of cane and thatch, though some 2,500-3,000 houses of permanent construction were also destroyed. The majority of victims lived either in the flood plains or on steep slopes which are vulnerable to mudslides. In most cases, the housing destroyed or damaged was among the poorest quality and belonged to those least able to afford repairs or replacement. Floods and mudslides in the middle of 1976 also caused substantial damage to the housing sector and contributed to a greater degree of overcrowding and the growth of uncontrolled settlements. A major lesson learned from these experiences was that the site of a unit is more

crucial than the materials or construction method used. If appropriately sited, even houses made of bajareque or wood are able to withstand heavy rains.

Honduras: Estimate of Destruction of and Damage to Housing <sup>a/</sup>

<u>Location</u>	<u>Before the Hurricane</u> <sup>b/</sup>	<u>Affected by the Hurricane Destroyed</u>	<u>Hurricane Damaged</u>	<u>Percent Affected</u>
<u>Total</u>		<u>2,898</u>	<u>12,500</u>	
Tegucigalpa-Comayagua	50,950	3	25	
San Pedro Sula & La Lima	31,820 <sup>c/</sup>	500	4,000	14
Santa Rita	1,620	200	500	43
Choloma	1,680	500	500	60
Puerto Cortes	5,480	400	500	16
Omoa	312	150	300	d/
Progreso	5,625	500	3,000	62
San Manuel	405	50	150	49
Villanueva	940	100	400	53
Pimienta	404	50	150	49
Potrerrillos	1,334	50	500	41
Tela	3,975	n.a.	80	2
La Masica	360	20	50	19
Tocoa	542	100	1,200	d/
Sonaguera	390	n.a.	300	77
Saba	395	n.a.	150	25
La Ceiba	7,615	150	500	9
Utila	310	5	50	18
Santos Guardiola	290	10	20	10
Roatan	490	10	25	7
Guanaja	474	100	100	42

a/ Not including an undetermined number of rural dwellings.

b/ In the municipal district, according to the 1974 Population and Housing Census.

c/ Includes 3,070 dwellings in La Lima.

d/ The figures for houses affected also include dwellings in neighboring villages and hamlets and thus exceed the figure given for the number of houses in the municipal district.

Source: Technical Secretariat of the Higher Council for Economic Planning.

Government-sponsored Housing

In urban low-cost housing the basic house, as built by INVA, consists of reinforced concrete footing, clay brick on block walls, concrete floors, asbestos cement roof, wood-framed glass windows, and wood doors. Interior and exterior walls are left bare and no ceilings are put in. These houses have electricity and indoor plumbing. The kitchen is equipped with a concrete sink with cold water only, while electrical wiring is left exposed. Pipes are concrete and galvanized iron. A typical lot is 72 sq. m. and the building area 30 to 35 sq. m.

Construction materials for urban middle income housing are the same as in low cost housing, but with improvements and larger spaces. The bathroom is complete with lavatory and probably a ceramic tile wainscot. A dropped ceiling is included and electric conduits are concealed in the walls. Lots are larger, 150 to 200 sq. m. and the constructed area is 70 to 80 sq. m.

Physical Design of Two Urban Housing Projects

	<u>INVA</u>	<u>FEHCOVIL</u>
Lot	6 x 12 meters (72)	5 x 13 meters (65)
Dwelling	3 x 6 meters (18)	5 x 5 meters (25)
Materials		
Floors	Concrete	Concrete
Walls	Concrete panels	Concrete block & wood
Roof	Galvanized sheets	Galvanized sheets
Expansion Area	9 x 6 meters (54) w/o preparation or retaining walls	6.5 x 5 (32.5) meters leveled, with retaining walls
Utilities	Water, sewer, electricity	Water, sewer, electricity

Source: Lindsay Elmendorf, Housing Project in Honduras, 1980.

## 5.12 Housing Types, Materials, Construction and Services

### Housing Types

The traditional owner-built house in urban areas has exterior walls of adobe or bajareque except in the northern coastal area where wood is predominant. Brick and cement walls are used by upper income families and in government-sponsored projects. In the major cities clay and cement tiled floors are usual, though earth floors are still found in marginal areas and in smaller cities. Wood floors are common in the low coastal areas and off-shore islands where houses are often constructed on wood pilings. Because of the increasing cost of ceramic tile, zinc sheeting and corrugated asbestos are replacing tile as the most common roofing materials.

A typical rural house has a packed earthen floor, an unsawed timber frame, walls of bajareque (packed mud and straw) on a woven "manaca" (palm leaf), no interior partitions, one door, no windows, and a manaca roof. Cooking facilities are minimal and are often in a corridor outside the living quarters. There is no electricity, indoor water supply, or plumbing. Most of these houses are built by their owners and are small (one room) and overcrowded. Most rural families are homeowners in contrast to being renters (only 2% rent), though they probably do not have title to their lot. Incomes in rural areas are so low that nearly all rural families are unable to purchase a home. Based on this situation, the government has not found it feasible to develop housing programs in rural areas. To date there have been only a handful of rural projects, generally after a disaster.

### Construction Materials

Approximately 90% of all building materials are produced locally, although they are not always readily available. Overall quality of domestic materials is acceptable but orders must be placed well in advance to assure prompt delivery.

Cement - one plant in San Pedro Sula has a capacity to fill domestic needs and produce a surplus for export.

Concrete blocks and clay bricks - generally sufficient supply. To ensure availability order should be placed in advance.

Sand and gravel - abundant in northern coastal areas; shortages in highlands near Tegucigalpa.

Wood - although Honduras has the largest forest reserves in Central America, most of the lumber produced is exported. High domestic demand has caused scarcities and high prices. Honduras is industrializing its forest reserves with the assistance of international agencies. Five zones have been designated as potential forestry development areas with projects presently being carried out in two: Olancha and Comayagua. Timber production has shown an upward trend since 1975: 203 million board feet that year compared with 260 million board feet in 1979. The proportion of exports has been declining: 95% in 1975 and 54% in 1979. Common grade lumber is generally left to meet domestic demand for construction; standing timber is sold to sawmills for primary transformation.

There were 118 sawmills in 1977 and 58 secondary wood processing plants, including 2 companies producing 13,000 cubic m. of plywood.

Roofing - asbestos cement planks are most widely used; local plants maintain adequate supplies. Traditionally clay tiles were used but, due to increased costs, only upper income families can afford them. Corrugated galvanized iron sheets are imported.

#### Construction Costs

<u>Item</u>	<u>Unit</u>	<u>1974</u>
Layout	M <sup>2</sup>	\$ 0.05
Excavation	M <sup>3</sup>	1.50
Footings (cyclopean concrete)	M <sup>3</sup>	68.49
Drainage (concrete pipe 4")	M <sup>1</sup>	4.36
Compacted fill	M <sup>3</sup>	2.50
Brick walls	M <sup>2</sup>	5.90
Roof (wood purlins covered with asbestos-cement panels)	M <sup>2</sup>	3.90
Water supply lines	M <sup>2</sup>	3.55
Cement floor tile	M <sup>2</sup>	6.00
Wood doors	U	30.00
Electricity	U	15.61

Source: USAID, Honduras Housing Sector Analysis, 1974.

### 5.13 Services

#### Water Supply

Of the approximately 7,500 villages in Honduras, only 389 have some type of water system. The majority of these systems are inadequate and/or in need of repairs. Only 60% of the systems provide water all day during the dry season and in only 20% is the bacteria level of the water satisfactory. Servicio Autonomo Nacional de Acueductos y Alcantarillado (SANAA) is the government agency in charge of the water supply in the larger urban areas. Smaller cities and towns generally operate local plants and systems. Approximately 70% of urban families have piped water, while only 4.2% of rural families have direct access; 89% of urban and 15% of rural families have general (communal) access to safe water.

#### Sanitary Facilities

Approximately 80% of the population has no access to sanitary facilities and there are no sewage treatment plants in the country. Throughout the country, about 45% of the homes in urban areas and 90% of those in rural areas are without sanitation facilities. Septic tanks are used in 50% of the homes with facilities. In Tegucigalpa there is a main underground collector running along the Rio Choluteca which collects most of the sewage and discharges it into the river outside the city limits.

#### Electricity

Electric power is supplied to about 15% of the population, primarily urban, by municipal or community owned systems. Electricity is generally used for lighting only; heating is done by kerosene, wood, or charcoal. Empresa Nacional de Energia Electrica (ENEE) is responsible for the provision of electric energy. This agency operates in most of the municipal capitals and larger cities. In some of the smaller cities on the north coast, electricity is purchased from banana companies. Power is available an average of 5 hours daily. The sources of electric energy are 61% hydraulic and 39% diesel or gas turbine.