

1. Overview

With an average of 393 persons per square kilometer, Haiti is one of the most densely populated countries in Central America. A strong rural-urban migratory trend and socio-economic imbalances have resulted in a concentration of population in urban areas, especially Port-au-Prince. Sixty percent of the urban population live in the Port-au-Prince metropolitan area and, with an annual population increase of 5-6%, the predominance of the capital continues to grow.

The housing situation in Port-au-Prince is one of the worst in the world. Sixty-four percent of the housing stock is built of scrap, wattle, straw and wood, and is collectively considered slum-level. 43.7% of the population live in densities of 800 people per hectare. In some areas of the city, the density reaches 2,000 people per hectare. More than 80% of the housing stock is not connected to the water supply system, and 61% of dwelling units offer less than 3 sq m per resident.

Although shelter conditions in provincial towns and rural areas are better by comparison, construction activity in these areas is inadequate and shortages of housing are felt at all income levels.

2. Housing Policy and Institutions

At present, a coherent material housing strategy does not exist. The housing section of the five-year development plan consists of several projects, but offers no guiding policy. However, the government has adopted a policy of decentralization of economic activity to rural areas which, once implemented, will affect the housing situation.

The basic legislation for control of shelter development is an Executive Order, (Decret-Loi Etablissant des Regies Speciales Relatives a l'Habitation et a l'Amenagement des Villes et des Campagnes, Le Moniteur 92 no. 63, 5 August, 1937), which contains rules pertaining to town planning and the supply of services. However, this legislation is deficient since there is no provision to ensure basic infrastructure, nor is there any mechanism to determine the appropriateness of a subdivision or building. Instead, the procedures for obtaining a permit focus on design and structural characteristics. In addition, the regulations are not followed by the authorities.

Expropriation of land for public purposes can occur quickly, once a declaration of public interest has been made. A lack of cadastres, inventories of public land, and zoning regulations aggravates the shelter problem.

Although there is no large-scale formal production of housing by either the public or private sector, the following institutions play a significant role in the shelter sector.

Ministry of Planning (Division de l'Amenagement du Territoire et de la Protection de l'Environnement -- DATPE, formerly National Development Planning Council -- Conseil National de Developpement et de Planification-- CONADEP). Created in November 1978, the Ministry of Planning is expected to define regions in the country, undertake studies, and formulate strategies concerning regional decentralization and development. Since there is no provision for linking its activities with sectoral departments and financial divisions of the planning ministry, DATPE's plans bear little relevance to actual investments. Substantial foreign assistance has been the sole reason for DATPE's continued existence.

Town Planning Service (Service de Planification Urbaine - SPU, formerly Service d'Urbanisme). Established within the Department of Public Works, Transport and Communications (Departement des Travaux Publics, Transports et Communications DTPTC) the service is charged with the physical and economic planning of urban and rural centers, including formulating plans for reconstruction following a natural disaster. Detailed control of urban development is the responsibility of the Urban Engineering Service (Service de Genie Urbain), while the SPU has the more general responsibility of planning and standardization. The absence of a zoning plan and building code severely constrains the control of private construction activities and the SPU is forced to rely on the general prescriptions of the 1937 Town Planning Law.

Programming Unit (Unit de Programmation--UP). As part of the DTPTC, the UP prepares 5-year and annual plans in the areas of public works, urbanization, transport, energy, drinking water, and communications. There is some confusion as to the functional overlap between UP and SPU; however, the coordinating mandate of UP is of great potential importance.

The Municipalities. Poor financial status, lack of technical expertise, and limits on local authority render the planning activities of municipalities of little significance.

The National Housing Office (Office National du Logement - ONL) ONL's activities have been confined to the maintenance and management of housing projects planned, built, and financed by other state agencies, and its staff is not directly involved in planning, programming finance, or construction of shelter. The ONL is charged with executing low-income housing policy.

Housing Bank (Banque du Logement - BDL). BDL was created to promote private property access for middle income groups in the population and to improve the housing conditions of low income families. Specific duties include: creation of savings and loan mechanisms, preparation of loan guarantees, and the supervision of private home savings and loan associations. The ONL and BDL functions overlap in the areas of constructing low-income housing, setting physical and financial standards for low income housing, maintaining and managing buildings built by BDL, and determining property acquisition and transfer methods.

Service related institutions include:

Centrale Autonome Metropolitaine d'Eau Potable (CAMEP). CAMEP is responsible for water supply, management of distribution facilities, and planning extensions and improvements to the system.

Service National d'Eau Potable (SNEP). SNEP has the same responsibilities as CAMEP only for provincial towns.

3. Disaster/Low-cost Housing

Since one of the major Caribbean hurricane tracks crosses Haiti, heavy damage is often suffered by the low-lying coastal settlements. Sections of Port-au-Prince which house the majority of the low income population may be subject to up to two meters of flood waters.

Two low-income housing projects are currently being financed in St. Martin and the Brooklyn section of Cite Simone. The St. Martin project is being developed with support from the UN and the Brooklyn project with funding from the Belgian government. The monthly payment ranges from US\$2-10. The Office National du Logement (ONL) has designed a middle-class housing project, which has not yet been funded.

Since there is no savings and loan system in Haiti, housing has been heavily subsidized by international and national donor organizations, with no recoument of investment.

4. Housing Types, Materials, Construction and Services

Shelter production is customarily the result of individual efforts, whether for low-, medium-, or high-income families. The following table summarizes the urban housing types and their characteristics:

Type of Settlement	Materials	Avg. Dwelling Unit Size	Cost US \$	Avg. Monthly Rent US \$
High density, low-income, uncontrolled, spontaneously settled access ways. No infrastructure.	Scrap or concrete block masonry and sheet metal roof.	10 m ²	100-300	40
High density, low-income, planned road layout.	Concrete masonry and sheet metal roof or wood walls and sheet metal roof	15 m ²	100-2,000	40
Medium and low density, low income on peripheral unserviced land.	Wattle and straw roof or wattle and sheet metal roof or concrete block and sheet metal roof	11 m ²	300	25
Medium density, low-income. Internal road networks, minimal infrastructure.	Concrete block and sheet metal roof or concrete block and reinforced concrete roof	40 m ²	1,000-4,000	70
Mixed commercial and residential. Residences of upper-income business owners and low-income spontaneous settlers.	Concrete block, reinforced concrete roofs	60 m ²		

Source: USAID, Housing Office Shelter Section Assessment: Haiti.
June 1980.

The following tables indicate the costs of materials and labor associated with housing construction and repair:

Housing Construction Costs
(US \$ per sq m)

Builder	Walls and Structure	Roof	Materials \$/sq. m	Labor \$/sq. m	Total
Low- Income	scrap	scrap or straw	5-10	2-3	7-13
	wattle	straw	15-20	5-7	20-27
	wood	sheet metal	20-30	5-8	25-38
	blocks	sheet metal	25-35	10-13	35-48
Middle- Income	blocks	sheet metal	50-80	25-40	75-120
	blocks	concrete	90-140	45-70	135-210

Cost of Construction Materials in Port-Au-Prince (US\$1976)

Item	Unit	Price (\$)	Price Increase 1970-1976
Small tree trunks (5 cm. dia)	dozen	2.00-7.00	--
Quarry stone	m ³	2.50	50%
Rocks	m ³	5.00	50%
Wattle	m ²	6.00	--
Blocks, 10 cm vibrated	each	0.12	--
nonvibrated	each	0.12	--
Blocks, 15 cm vibrated	each	0.14)	55%
nonvibrated	each	0.13)	
Blocks, 20 cm vibrated	each	0.16)	45%
nonvibrated	each	0.16)	
Wood planks, scrap	m ²	3.00-5.00	--

<u>Item</u>	<u>Unit</u>	<u>Price (\$)</u>	<u>Price Increase 1970-1976</u>
Wood planks, local-wholesale	m ²	2.50)	105%
retail	m ²	3.60)	
Wood planks, local-wholesale	m ²	3.50)	65%
retail	m ²	5.00)	
Sheet metal, scrap	each = m ²	0.90	--
Corrugated sheets, inferior	each = m ²	2.00)	30%
Corrugated sheets, inferior	hundred	140.00)	
Corrugated sheets, superior	each = m ²	3.00)	20%
Corrugated sheets, superior	hundred	175.00)	
Asphalt panels	each = m ²	4.90	30%
Sand delivered by wheelbarrow	m ³	8.50)	65%
delivered by truck	m ³	5.00)	
Cement	sack	2.40	60%
Reinforcing steel	pound	0.21)	130%
Reinforcing steel	1,000 lbs.	190.00)	

Source: World Bank, Haiti: Urban Sector Survey, 1979.

Shelter conditions in provincial towns and rural areas are somewhat better than in major urban centers. Most units are independent structures with more space than urban ones. Interior space is used primarily for sleeping and storing goods, while external space is used for cooking, washing, eating, and social gathering. Most families rent a bare plot and build their own houses. Housing construction costs are lower than in urban areas. Low-income families tend to build with wattle and mud with straw roofs.

Higher income groups invest in corrugated metal roofs and corrugated metal supporting structures. Sand, rocks, and labor costs are lower, while cement, wood, and metal sheets are higher than those in urban areas.

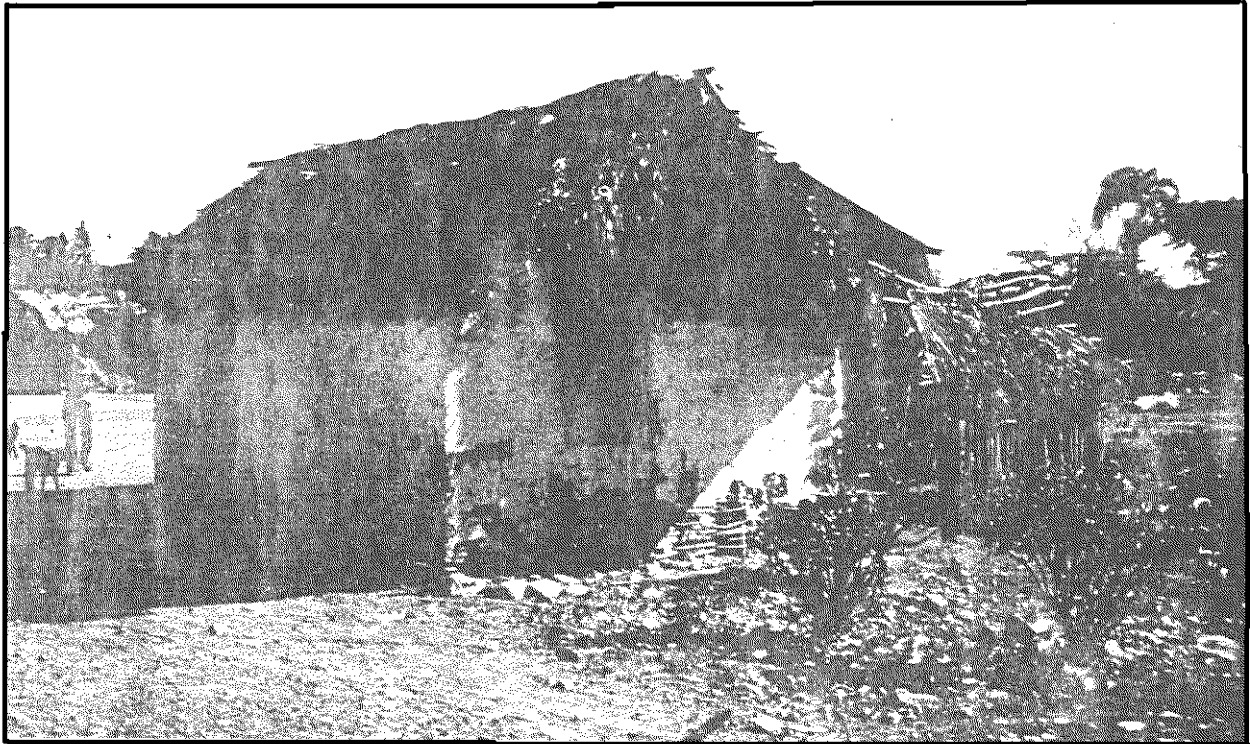
Haiti's urban areas have a serious lack of adequate service provision. For example, the existing water supply systems in Port-au-Prince and Cap-Haitien serve about one third of the population. On a per unit basis, the prices paid by the low income population are at least ten times the average paid by those connected to the water distribution. Consumption by low income families averages 12-15 liters per capita per day compared to more than 130 liters per day for high income families.

Structure of Port-Au-Prince Residential Water Distribution,
From The CAMEP System, 1976

<u>Supply Source</u>	<u>No. of Consumers</u>	<u>% of Consumers</u>	<u>Daily per Caput Consumption (liters)</u>
Private connections (legal and illegal)	150,000	23%	156
Public fountains (free)	55,000	9%	15
From another's private collection (free)	95,000	15%	32
From leaks and breaks	40,000	6%	18
Purchase from interme- diaries	<u>300,000</u>	<u>47%</u>	<u>11</u>
Total (Average)	640,000	100%	49

Source: World Bank, Haiti: Urban Sector Survey, 1979.

There is no sanitary sewer system in operation in any of Haiti's urban areas. Septic tanks are utilized by higher income households, while pit latrines are the most common form of sanitary facility used in low income neighborhoods. In many cases, the households do not have any form of sanitary facility.



Haitian Wattle and Daub House with Thatched Roof. (Photo by Aaron Benjamin, USAID Urban Development Officer, Santo Domingo.)

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1. Overview

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 (estimated at 3,702,000) 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, Compayagua, 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.

2. 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 funding sources have been the government and the InterAmerican Development Bank. USAID has provided Honduras with \$27.9 million through four HG loans since 1963 when the first HG loan was authorized.

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

Asociacion Por Desarrollo Humano is 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) is a 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.

3. Disaster/Low-cost Housing

3.1 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 accumulates 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 of 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^{a/}

<u>Location</u>	<u>Before the Hurricane^{b/}</u>	<u>Affected by the Hurricane Destroyed</u>	<u>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 c/	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
Potreriillos	1,334	50	500	41

<u>Location</u>	<u>Before the Hurricane</u> ^{b/}	<u>Affected by the Hurricane</u> <u>Destroyed</u>	<u>Damage</u>	<u>Percent Affected</u>
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 as yet 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.

3.2 Government-sponsored Housing

In urban low-cost housing the basic house, as built by INVA, consists of reinforced concrete footing, clay brick or 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. meters and the building area 30 to 35 sq. meters.

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.

4. Housing Types, Materials, Construction and Services

4.1 Housing Types

Urban

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.

Rural

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.

4.2 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 capacity to fill domestic needs and produce a surplus for export. 5,542,000 sacks were produced in 1973.

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. A rock crushing plant in the North Coast area was being relocated near Tegucigalpa in 1974 and other plants were being planned.

Wood - although Honduras has the largest forest reserves in Central America, most of the lumber produced has been 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 m³ 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 ₃ ²	\$ 0.05
Excavation	M ₃	1.50
Footings (cyclopean concrete)	M ₃	68.49
Drainage (concrete pipe 4")	M ₁	4.36
Compacted fill	M ₃	2.50
Brick walls	M ₂	5.90
Roof (wood purlins covered with asbestos-cement planks)	M ²	3.90
Water supply lines	M ₂	3.55
Cement floor tile	M ²	6.00
Wood doors	U	30.00
Electricity	U	15.61

Source: AID, Honduras Housing Sector Analysis, 1974.

4.3 Services

Water Supply

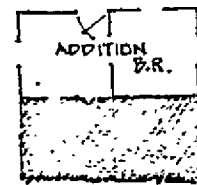
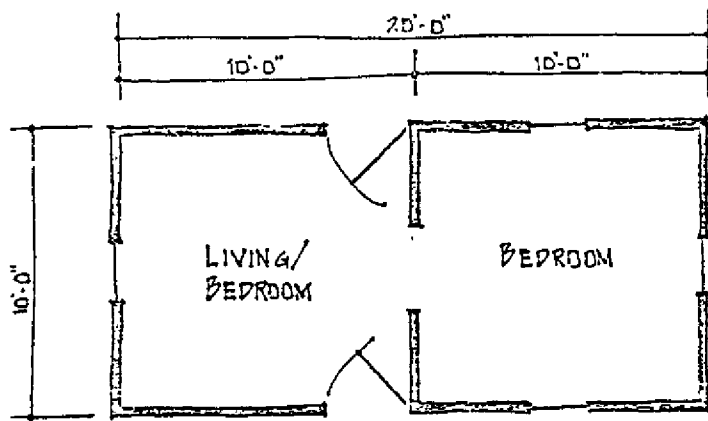
Of the approximately 7,500 villages in Honduras, only 389 have some type of water system. The majority of these systems are inadequate and/or in need of repairs. Only 60% of the systems provide water all day during the dry season and in only 20% is the bacteria level of the water satisfactory. Servicio 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

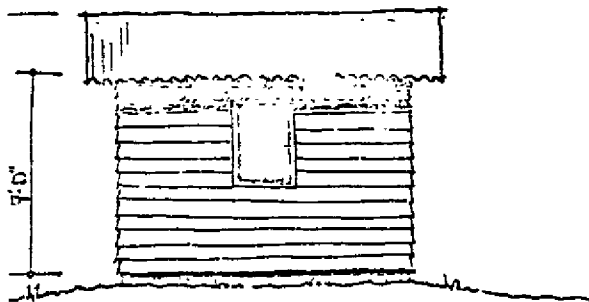
Approximately 80% of the population have no access to sanitary facilities and there are no sewage treatment plants in the country. Throughout the country, about 45% of the homes in urban areas and 90% of those in rural areas are without sanitation facilities. Septic tanks are used in 50% of the homes 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.

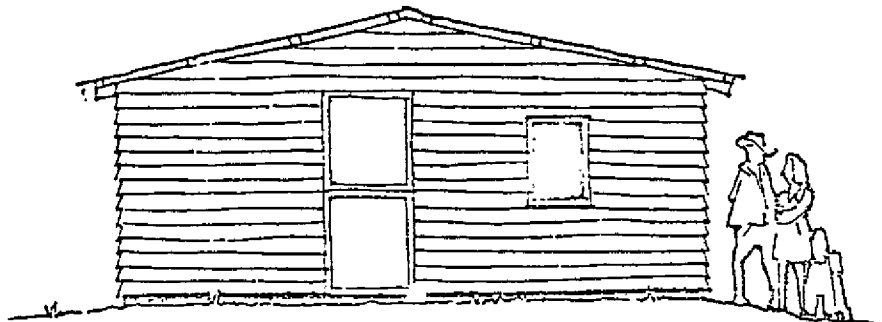


FLOOR PLAN



SIDE ELEVATION

Area	200
Estimated cost	290 sq.ft. \$350
Roof	Zinc
Walls	Wood
Floor	Concrete
Structure	Wood
Foundation	Concrete



FRONT ELEVATION

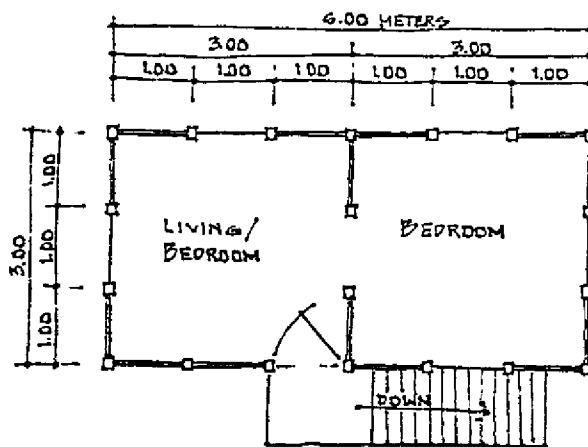


PREFABRICATED WOOD HOUSE FOR HONDURAS

Preliminary design based on existing APRHU housing unit and proposed FESITPANH building system

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Source: AID, Capital Assistance Paper. Honduras - Hurricane Rural Reconstruction and Recovery, December 1974.



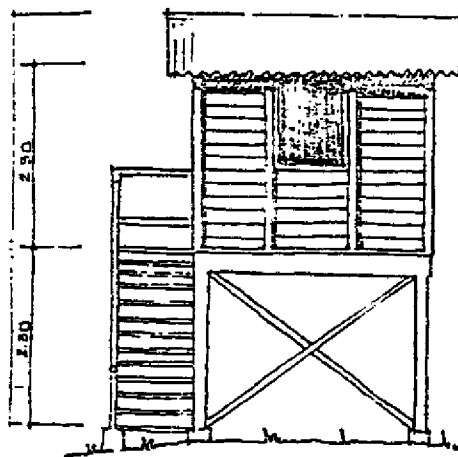
ANNEX II
Exhibit G



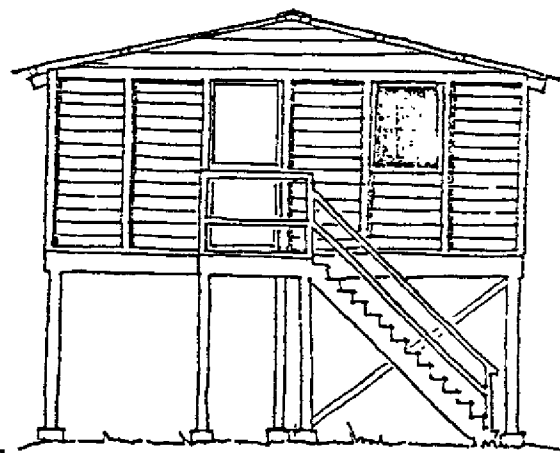
Area 18 sq.m. (194 sq.ft.)
Estimated cost \$400

Roof	Zinc
Walls	Wood
Floor	Wood
Structure	Wood
Foundation	Concrete

FLOOR PLAN



SIDE ELEVATION



FRONT ELEVATION



Dec. 17, 1974

PREFABRICATED WOOD HOUSE FOR HONDURAS

Preliminary design based on building system proposed by CODEFOR

Drawn by *[Signature]*

Source: AID, Capital Assistance Paper. Honduras - Hurricane Rural Reconstruction and Recovery, December 1974.

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