Housing Survey for Disaster Relief and Preparedness:

LATIN AMERICA

March 1981

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

Prepared by
Evaluation Technologies, Inc.
Arlington, Virginia
under
Contract AID-SOD-PDC-C-0283

Latin America

503932 11-78 (544170)

HOUSING SURVEY FOR DISASTER RELIEF AND PREPAREDNESS: LATIN AMERICA

TABLE OF CONTENTS

Introduction

This regional housing profile of Latin America was designed to provide a concise yet comprehensive picture of housing in that region to assist the US Office of Foreign Disaster Assistance in the planning of shelter relief operations. The countries chosen for inclusion--Bolivia, Chile, the Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Nicaragua and Peru--are particularly prone to natural disasters and have received US relief assistance in the past. The focus is on the housing of the poor--the economic group most likely to be affected when disaster strikes and least able to recover quickly without assistance.

The report is in two parts. The first describes settlement patterns and housing types; methods and materials commonly used in housing construction in each country; the institutions involved in the financing and building of low-cost housing; and, when information was available, the kinds of emergency shelter provided in the past and their acceptability. The second part covers disaster mitigation techniques in earthquake- and wind-resistant housing.

It is hoped that the information provided will also be useful to others in the disaster assistance and development communities in their planning, mitigation and relief operations, as well as in future efforts to coordinate relief and permanent housing assistance programs.

Every effort was made to obtain current and reliable data; however, in some instances very recent statistics were not available. The reader who wishes a more detailed and technical description of housing construction methods and disaster mitigation techniques than this summary provides is referred to the bibliography for sources.

We invite your comments and corrections. Address these and other queries to Office of U.S. Foreign Disaster Assistance, Agency for International Development, Washington, D.C. 20523.

March 1981

Acknowledgements

The authors, Deborah Webb, Faye Henderson and Cecily Mango, wish to acknowledge their indebtedness to those agencies and individuals who assisted their research by suggesting sources and providing material. In particular, they wish to express their gratitude to the following: Office of Housing, Agency for International Development, for making its Shelter Sector Assessments and other publications available and for reviewing the final drafts; INTERTECT, for the use of its publications on disaster mitigation; and Mr. Charles Mathews, Engineering Division Chief, LAC/DR, for reviewing photographs used in the section on earthquake damage mitigation and for assisting with captions.

Thanks also go to our ETI colleagues who assisted with style and copy editing, and with typing.

Abbreviations and Acronyms

BANDESA -	National Agricultural Development Bank (Guatemala)
BANVI -	Banco de la Vivienda (Housing Bank) (Bolivia)
BANVI -	Banco Nacional de la Vivienda (National Housing Bank) (Guatemala)
BAVINIC -	Banco de la Vivienda de Nicaragua (National Housing Bank) (Nicaragua)
BEV -	Banco Ecuatoriano de la Vivienda (Ecuadorian Housing Bank) (Ecuador)
BDL -	Banque du Logement (Housing Bank) (Haiti)
BIAPE -	International Savings and Loan Bank
BNV -	Banco Nacional de la Vivienda (National Housing Bank) (Dominican Republic)
BVP -	Banco de la Vivienda del Peru (Peru)
CABEI -	Central American Bank for Economic Integration
CICV -	Comision Inter-Institutional para la Coordinacion de Programas de Viviendas (Inter-Institutional Commission for the Coordination of Housing Programs) (Dominican Republic)
CONADE -	Consejo Nacional de Desarrollo (National Planning Board) (Ecuador)
CONAVI -	Consejo Nacional de Vivienda (National Housing Council) (Bolivia)
DIDECO -	Direccion de Desarrollo Comunal (Community Development Department (El Salvador)
EMADIPERU -	Peruvian Real Estate Management Enterprise (Peru)
FEHCOVIL -	Honduran Cooperative Housing Federation (Honduras)
FHA -	Instituto de Fomento de Hipotecas Aseguradas (Institute of Insured Mortgages) (Guatemala)
FNV -	Financiera Nacional de la Vivienda (El Salvador)
FUNDASAL - (FSDVM)	Fundacion Salvadorena de Desarrollo y Vivienda Minima (El Salvador)
IBRD -	International Bank for Reconstruction and Development (World Bank)
IDB -	Inter-American Development Bank
INIAVI -	Instituto de Investigaciones para la Accion en Vivienda (Institute for Investigation of Housing Action (Peru)
INVA -	National Housing Institute (Honduras)
INVI -	Instituto de la Vivienda (National Housing Institute) (Dominican Republic)
INVU -	Instituto Nicaraguense de la Vivienda (Nicaraguan Housing Institute) (Nicaragua)
IVU -	Instituto de Vivienda Urbana (Urban Housing Institute (El Salvador)
JNV -	Junta Nacional de la Vivienda (National Housing Board) (Ecuador)
MINVU -	Ministry of Housing and Urbanism (Chile)
MOHC -	Ministry of Housing and Construction (Peru)
MUV -	Ministry of Urban Development and Housing (Bolivia)
ONL -	Office National du Logement (National Housing Office) (Haiti)

PRIDECO - (formally ONCOM - Oficina de Mejoramiento de Communidades Marginales) (El Salvador)
SINAP - Savings and Loan System (Chile)
SPU - Service de Planification Urbain (Town Planning Service) (Haiti)

Measures and Equivalents

mm	=	millimeter (0.03937 inches)
cm	=	centimeter (0.3937 inches)
1 meter (m)	=	3.28 feet
1 kilometer (km)	=	0.62 mile
cm^2	=	square centimeter (0.1550 square inches)
m^2	=	square meter (10.764 square feet)
m^3	=	cubic meter (35.314 cubic feet or 1.308 cubic yards)
ha_2	=	hectare (2.471 acres)
km^2	=	square kilometer (0.386 square miles)
l	=	liter (0.264 U.S. gallons)

Housing Survey by Country

1. Overview

The census of 1976 recorded a national population of 4,647,816; World Bank estimated 5,290,000 in 1978. Growing urbanization in recent years is evidenced by the rise in percentage of people living in cities of over 2000 inhabitants from 30.5% in 1965 to 34% in 1975. An urban growth rate of 4% per year during the same period compares with a rural rate of 2.1% and an overall growth rate of 2.9%. Between 1950 and 1976 Santa Cruz recorded the fastest growth rate at 7.3% per year; the main cities of La Paz and Cochabamba grew at 3.5% and 3.9% respectively. About 80% of the rural population lives in the highlands (30%) or valleys (50%). Lowlands are sparsely populated.

Provision of housing and services has not kept pace with urban growth. Despite government efforts of recent years, including expropriation of large urban holdings and redistribution of land (Urban Reform Law of 1963), creation of a housing council (1964) and housing bank (1974) to accelerate construction of low-cost units, much housing of urban poor is makeshift, self-built, and lacking in basic services. 83% of the housing stock in the cities of La Paz, Cochabamba, Oruro, Potosi, Sucre, and Tarija was considered marginal by the Ministry of Planning in 1972. Overcrowding is a common problem; 60% of dwellings in Trinidad, 40% in Sucre, have 3 or more persons per room. 1966-1972 census data showed that more than half of the urban units were rented while 98% of rural dwellings were owner-occupied.

The rural population consists mainly of subsistence farmers who work small plots. In general there is little buying and selling of homes, and self-construction is the usual method. The typically small rural home is built of adobe brick in the highlands and of natural plant materials in the lowlands.

An estimated annual housing demand of 40,000 units is equally divided between urban and rural; production through housing institutions, however, does not exceed 5,000 units.

Estimates of National Housing Deficit
(CONAVI)*

Cities	Population	Housing Demand	# of Existing Houses	Housing Deficit
La Paz	806,448	161,289	49,500	111,789
Cochabamba	173,779	34,755	15,900	18,855
Santa Cruz	159,410	31,882	17,040	14,842

* Consejo Nacional de Vivienda

Cities	Population	Housing Demand	# of Existing Houses	Housing Deficit
Oruro	138,768	27,753	10,556	17,197
Potosi	114,969	22,993	6,850	16,143

Cities	Population	Housing Demand	# of Existing Houses	Housing Deficit
Sucre	100,836	20,167	6,300	13,867
Tarija	42,401	8,480	3,700	4,700
Trinidad	27,080	5,416	3,545	1,871
Cobija	5,609	1,121	405	716
Total	1,569,300	313,856	113,876	199,980

Source: AID, Bolivia Shelter Sector Assessment, 1976.

Household and Family Size

	Persons per Household	Family Members per Household*	Labor Force Participation Rate
Bolivia	5.11	5.00	39%
City of La Paz	4.72	4.51	38%
Other Urban Areas	5.32	5.10	34%
Rural Areas	5.12	5.07	41%
Provinces:			
Chuquisaca	5.21	5.11	34%
La Paz	4.76	4.67	44%
Cochabamba	5.10	4.95	40%
Oruro	5.04	4.97	32%
Potosi	5.19	5.15	33%
Tarija	5.67	5.48	36%
Santa Cruz	5.85	5.56	36%
Beni	6.84	6.67	36%

* excludes non-relatives living in the household

Source: AID, Bolivia Shelter Sector Assessment, 1976.

2. Housing Policy and Institutions

Ministry of Urban Development and Housing (MUV), established in 1970, was given the central role by the 1973 Housing Law to give single source direction to housing and urban development activities. The Housing Division of MUV has three principal sections: Housing, Community Development, and Technology. As the community development arm, Direccion General de Promocion Communal (DGPC) has low-income community development plans as its main function.

Banco de la Vivienda (BANVI)--financial entity created by Housing Law. Solution to financing low-income shelter expected to be its primary objective.

The Bolivian Savings and Loan System--consisting of central bank and regulatory agency, Caja Central de Ahorro y Prestamo (CACEN), and 11 member associations, is the only institutional source of long-term financing in the private sector. Since change in AID Housing Guaranty policy, savings and loan institutions have been involved in low-cost shelter programs. CACEN is principal contact with government and international lending institutions.

Banco Hipotecario and other commercial banks lend for housing on short-term basis only.

The Consejo Nacional de Vivienda (CONAVI), founded in 1964 as largest housing council, is semi-autonomous under MUV and an effective implementing agency in the housing sector.

3. Disaster/Low-cost Housing

Several recent housing "solutions" have received external financing.

1. IBRD - 1977 Urban Development Project included 5,525 serviced plots in El Alto section of La Paz, about 85% with core dwelling options; upgrading of 4,500 units with basic infrastructure and construction material credits based on mutual aid.

2. IDE - $21 million loan to CACEN for emergency shelter for Trinidad flood victims in 1976 that provided 800 core units and services on high land on city outskirts.

3. Interamerican Savings and Loan Bank (BIAPE) - negotiated $15 million in June 1978. CACEN presented solicitation for $3 million loan for construction of low-cost urban units to begin mid-1979.

4. AID - proposed two $4 million housing guarantees in 1979: one to BANVI to finance 2,090 shelters in Plan Socio Urbano projects, about 25% of them completed core units; one to savings and loan system for 2,870 shelters in rural areas, about 20% completed core units.

4. Housing Types, Materials, Construction and Services

4.1 Housing Types

Urban

The near absence of lean-tos and shacks in urban low-cost housing of the Altiplano is attributed to Bolivians' skill in constructing with adobe block. Thus, dwelling walls in La Paz or Sucre, for example, appear solid, though floors may be earthen, roofs of a variety of materials, and windows few. Slum housing in the lowlands, where sun-baked bricks are the common building material, is less durable.

About 62% of the population of La Paz lives in marginal housing on city outskirts, chiefly on steep, landslide-prone slopes; poor site selection, overcrowded conditions, and an absence of services are greater problems than structure durability.

In the lowland city of Trinidad, a recent survey found 80% of the housing to be substandard and in need of repair. Over 50% of units were built in the traditional manner: mud and cane walls, tile or palm roofs. 78% of the dwellings lacked sanitary facilities; 50% depended on a public spigot for water supply.

Rural

Rural homes are usually small and rectangular in shape. In the highlands they are typically of adobe brick construction with steeply gabled roofs of thatch (scrub). The kitchen may be a separate structure but cooking is usually done in the main house. Houses may be grouped or in compounds.

Low-cost housing in the lowlands is less permanent, with plant materials, such as reeds, palm fronds or thatch, extensively used. Mud, cane, and palm are traditional building materials in the eastern parts of the country. Roofs of palm fronds are steeply gabled.

Basic sanitary facilities are usually lacking; electric service is available only in, or near, major cities or towns. Manure or wood are used as fuel for cooking, kerosene lamps or candles for lighting.

4.2 Materials and Construction

Usual low-cost housing materials are adobe walls, cyclopean footings, and tin or clay tile roofing. 90% of traditional materials are domestically produced. Cement, brick, block, cement tiles, adobe, and wood for windows and doors are locally available; reinforcing steel, aluminum, sanitary fixtures, electrical conduit, pipes, glass, and hardware must be imported. Cement also is increasingly imported since annual production of about 266,000 tons does not meet demand. An inadequate transportation network and general inflation add to cost of materials.

Roofing: clay tiles common in La Paz; imported asbestos, aluminum, and zinc sheets have become popular.

Flooring: dirt floors common; otherwise, concrete slab is easiest, if not least expensive, material to use. Wood is preferred in higher altitudes; cement tiles set in mortar or compacted earth are often used in lowlands.

Walls: adobe brick in the Altiplano; clay brick or cement block in lowland urban areas.

Windows: increasingly seen (doors only openings in traditional homes); iron or wood frames most common in low-cost housing.

There were 176 construction companies in 1977: La Paz (104), Cochabamba (25), Santa Cruz (22). Technicians and unskilled workers are in adequate supply but shortage of skilled labor exists.

Self-construction and improvement of homes is a Bolivian cultural tradition. The basic shell which most low income families are capable of constructing can often be brought up to adequate standards with modest investments in improvements and addition of infrastructure.

Classification of Housing: According to Quality of Construction in 1972

Cities	# Inhabitants	Type I	Type II	Type III	Type IV	Total
La Paz	582,000	2,802	6,965	12,403	26,032	48,202
		5.81%	14.45%	25.73%	54.01%	100%
Cochabamba	163,940	1,359	2,985	5,697	7,861	17,002
		7.99%	17.55%	33.51%	46.23%	100%
Oruro	103,740	88	1,055	5,372	6,928	13,443
		0.65%	7.85%	40.0%	51.54%	100%
Potosi	72,070	22	313	2,407	4,193	6,935
		0.32%	4.51%	34.71%	60.46%	100%
Sucre	52,890	80	488	2,837	3,903	7,308
		1.1%	6.57%	38.86%	53.46%	100%
Tarija	29,110	127	350	1,239	2,258	3,974
		3.19%	8.80%	31.18%	56.82%	100%
Total	1,003,750	4,478	11,248	29,955	51,175	96,856
		4.62%	11.61%	30.93%	52.84%	100%

Type I: good quality construction with a full endowment of public facilities and amenities.

Type II: less luxurious than Type I but of good construction and access to public utilities. Includes most of the public sector housing.

Type III: marginal units, built of simple materials with no amenities, poor access to public utilities, and inhabited often by more than one family. This class includes deteriorating tenement buildings and boarding houses.

Type IV: slums or squatter units. The least stable construction, combined with an absence of all or most utilities and comforts.

Source: Ministerio de Planeamiento y Coordinacion. "Diagnostico de Vivienda" as cited in AID Bolivia Shelter Sector Assessment, 1976.

4.3 Services

Forty percent of urban housing units lack water service, 63% lack sewer facilities. Only 1% of rural population has access to piped water and 11.2% to adequate sewage disposal. Not more than 5% of rural households had electricity in the early 1970's.

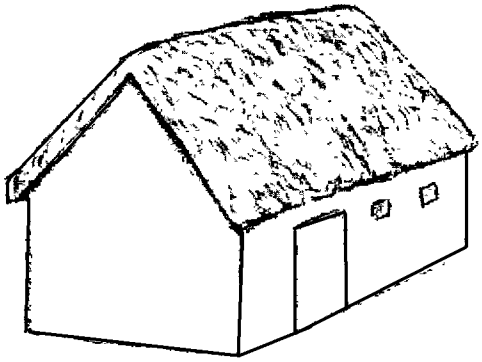
A water treatment plant and related trunk lines were expected to be in operation by 1978, facilitating development of the Altiplano. There were no sewer treatment plants in Bolivia in 1976, though construction of one in La Paz was being negotiated that year.

Percent of Housing Units with Service

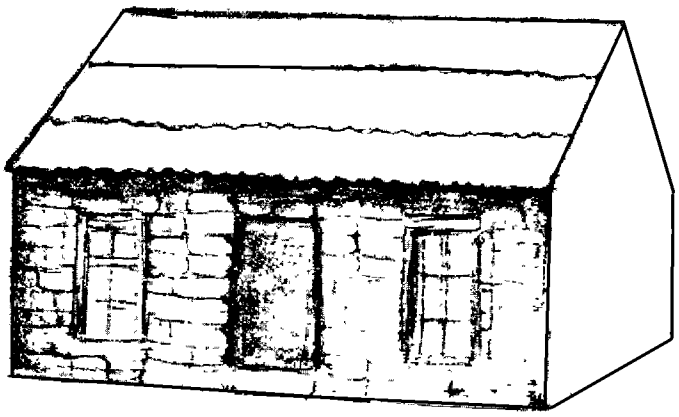
City	Year of Census	Water	Electricity	Sewer
Potosi	1972	43%	65%	32%
Tarija	1970	*	82%	*
Cochabamba	1967	61%	72%	41%
Oruro	1972	58%	83%	27%
Sucre	1972	71%	78%	46%

* No data available

Source: Ministerio de Planeamiento y Coordinacion as cited in AID Bolvia Shelter Sector Assessment, 1976.



Rural house in Altiplano: walls of adobe brick, roof of thatch.



Marginal urban dwelling: walls of adobe brick or block, roof of corrugated metal.

5. Bibliography

Agency for International Development. Bolivia: Country Development Strategy Statement, FY 82. United States International Development Cooperation Agency. Washington, D.C.: AID, January 1980.

_____. Bolivia Project Paper: Shelter Program for Low-Income Families. Washington, D.C.: AID, 1979.

_____. Office of Housing. Bolivia: Shelter Sector Assessment. Washington, D.C.: AID, December 1976.

U.S. Department of Commerce. Bureau of the Census. International Population Dynamics 1950-79. Demographic Estimates for Countries With a Population of 5 Million or More. Washington, D.C.: GPO, 1980.

Weil, Thomas E., et. al. Area Handbook for Bolivia. Washington, D.C.: GPO, 1974.

World Bank. Bolivia Urban Development Project. Washington, D.C.: IBRD, September 8, 1977.

1. Overview

Though Chile's national population growth rate of 1.6% in 1977 is one of the lowest in Latin America, the urban growth rate, especially that of the capital city of Santiago (4.4% per year between 1960-1970), has been considerably higher in recent decades due to a steady rural to urban migration. The percentage of population described as urban rose from 37% in 1940 to 60% in 1970 with a growing proportion of the urban population concentrated in Santiago: 51% in 1940 and 54% in 1970. The rural population made up only 27% of the national total in 1978 (projected estimate for national total in 1979: 10,848,00).*

Rapid urban population growth, combined with normal deterioration of housing stock and destruction of homes by natural disasters (an estimated 11,700 units are destroyed or become marginally habitable each year), has created a massive housing shortage. The 1978 deficit was estimated at 484,000 units of which 200,034 were needed for very low income families. Except for the luxury market, the housing supply has been severely depressed in recent years. The public sector's withdrawal from participation in construction has encouraged greater participation by private enterprise. The rising cost of housing and mortgage interest rates and shortage of long-term financing have excluded even middle-income families from the market.

Housing Terms

Poblacion - usually a government-built housing project in discrete neighborhood; often of one housing type.

Campamento - government-built housing project considered temporary and substandard by government's own definition.

Callampa - squatter or ad hoc housing.

Meddiagua - a basic 3 X 6 m shelter of wood frame and siding provided by the government as emergency housing. Floors may be of dirt, wood, concrete slab; roofs are of corrugated asphalt impregnated organic material, zinc, or cement asbestos.

Source: Charlotte Thompson and Paul Thompson. Preliminary Report on Post Disaster Housing in Chile. August 5, 1976.

* International Population Dynamics 1950-79. U.S. Department of Commerce, Bureau of the Census.

2. Housing Policy and Institutions*

The Ministry of Housing and Urbanism (MINVU) was created in 1965 to provide a central organization for housing and related urban affairs. Among the agencies integrated into MINVU were four semi-autonomous corporations in charge of various aspects of housing programs until 1976: the Urban Renewal Corporation (CORMU), the Housing Corporation (CORVI), the Corporation of Housing Services (CORHABIT), and the Urban Works Corporation (COU). The eventual overlapping of functions and competition among these agencies led to the decision to restructure MINVU and to consolidate activities under one agency while also decentralizing away from Santiago. (A national policy of regionalization was being implemented by the early 1970's.)

The Caja Central de Ahorros y Prestamos (Central Savings and Loan Bank), also under MINVU, regulated the private system of savings and loan associations (21 in 1974) and served as the central credit facility. The Savings and Loan System (SINAP) was given the task of allocating a large part of its resources to financing "social interest" housing. In addition, the establishment of a National Housing Bank to promote construction of medium-and low-cost housing within the public sector was being planned in 1974.

3. Disaster/Low-cost Housing

3.1 Post-Disaster Housing **

An earthquake and tidal wave (tsunami) in the south of Chile destroyed more than 50,000 homes in 1960; the 1965 earthquake in central Chile destoyed 23,000 homes and damaged over 31,000 others; another in about the same area in 1971 destroyed the same number of homes. The extensive use of wood in home construction in recent years and anti-seismic building codes in effect since the disastrous earthquake of 1939 are credited with keeping losses at this level.

* Data for this section are drawn from the AID Chile Shelter Sector Analysis, written in 1974 when housing policy and institutions were in a stage of active transition. Little information is available on subsequent developments.

** Major data source for this section is Preliminary Report on Post Disaster Housing in Chile (August 5, 1976) by Charlotte Thompson and Paul Thompson.

There was only limited use of tents and makeshift shelters following these recent disasters; survivors found refuge mostly in public buildings--schools, military barracks--or with relatives until government emergency housing became available.

The government's approach to emergency housing in each disaster followed the general housing policy then in effect. After the 1960 earthquake, the GOC established large areas as sites on which to erect simple wood duplex or row shelters (each project had 200-600 units). Though generally in a state of disrepair, the majority of units were still occupied in 1976.

Due to the high cost of providing infrastructure to these sites, this method was abandoned in the 1965 disaster. Instead, mediaguas (basic 3X6 m units with wood frame and siding) were provided to families on pre-existing or pre-serviced sites. There was a return to designated special zones (campamentos) for emergency housing in 1971, with mediaguas again provided.

In the opinion of Charlotte and Paul Thompson, the likely GOC approach to providing emergency shelter in a future disaster would again be the building of 3X6 m mediaguas on small lots in campamentos with basic infrastructure. They also saw evidence in the success of Plan BID (a loan program of Banco Interamericano de Desarrollo diverted to building completed homes in the disaster area in 1960) that, for little additional money, permanent housing could be built in the typical three-month span required for emergency housing.

3.2 Low-cost Programs

The cultural tradition that the head of a household must provide at least minimal family shelter has sanctioned the formation of callampas and even land invasions. A wave of illegal seizures of new housing units in the early 1970's prompted the GOC to institute an emergency housing plan which resulted in the completion of 28,000 36m^2 units. A current program is directed at families living in extreme poverty in slum areas. Under the guidance and direction of Community Housing Committees (given legal status as autonomous public agencies), families are moved out of callampas into homes of minimal standard which are considered transitory solutions until permanent housing is available. Another GOC program provides subsidies to qualified low-income families to make up the difference between the cost of a house and the amount of a mortgage loan obtainable from a banking institution.

4. Housing Types, Materials, Construction and Services

4.1 Housing Types

Urban

A result of rapid urban growth has been the proliferation of marginal callampa (mushroom) villages on the outskirts of major cities. The makeshift shanties of these densely populated squatter communities house the overflow from the traditional dwelling of the urban poor, the conventillo (tenement). An estimated 140,000 families lived in slums and shanty towns in 1974.

Rural

Homes of rural poor are typically one-or two-room dwellings, built of rough board or wattles and chinked with clay. Floors may be earthen or brick; roofs are of thatch or turf. Kitchen and dining room may be in a separate lean-to or veranda. The dwellings of those in slightly better economic circumstances often have adobe walls and tile roofs.

4.2 Materials and Construction

In the south, wood has been increasingly used as building material in recent decades, although in 1974 there was still a preference for the more expensive masonry or reinforced concrete construction. Despite widespread recognition among Chileans of the superior seismic-resistant qualities of wood over traditional adobe construction, adobe is still used in rural areas of the north, where termites are a serious problem and wood is more expensive, with little improvement in construction technology. Likewise, adobe structures still occupied in areas recently hit by earthquakes are often cracked and damaged, and highly vulnerable to collapse during a severe quake. The serious housing shortage makes eradication of these dwellings impossible.

The use of new techniques to improve efficiency of construction (e.g., prefabrication) was being encouraged in the mid-1970's. Chile has several housing factories capable of producing a variety of prefabricated components.

In 1974, the GOC originated about 80% of all construction investment. There appeared to be no shortage of skilled or unskilled labor in the industry nor any lack of critical materials such as lumber or cement. Builders in Chile, described as sophisticated and numerous emough to produce a

large volume of housing units, were under-utilized in 1974.

4.3 Services

The more extensively developed areas of Santiago have sewage collectors, though there are no treatment plants. Collectors discharge into the Mapocho River which eventually empties into the Pacific. The potable water system in the capital city consists of a central system and at least 10 others. Treatment is generally limited to chlorination and, in some systems, filtration.

72% of urban homes and 20% of rural ones have running water, though piped water is no guarantee of purity. Recent studies covering 80% of the country's water systems reveal that 43% of those tested, reaching 20% of the people with potable water, are supplying contaminated water.

Only 56% of urban homes (housing 49% of the urban population) and 12% of rural homes are equipped with waste disposal systems.

5. Bibliography

Agency for International Development. Office of Housing. Housing Guaranty Program. Chile Shelter Sector Analysis. Washington, D.C.: AID, 1974.

_____. Country Development Statement: Chile. FY 1981. Washington, D.C.: AID, January 1979.

Thompson, Charlotte and Paul. Preliminary Report on Post Disaster Housing in Chile. August 5, 1976.

U.S. Department of Commerce. Bureau of the Census. International Population Dynamics 1950-79. Demographic Estimates for Countries with a Population of 5 Million or More. Washington, D.C.: GPO, 1980.

Weil, Thomas E., et al. Area Handbook for Chile. Washington, D.C.: GPO, 1969.