

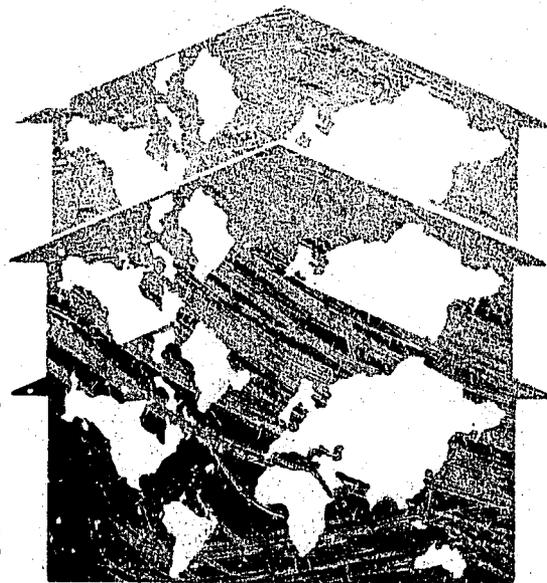
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PARAGUAY
SHELTER
SECTOR
ASSESSMENT

JANUARY 1980

**AGENCY
FOR
INTERNATIONAL
DEVELOPMENT**



OFFICE OF HOUSING

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PARAGUAY SHELTER SECTOR ASSESSMENT

JANUARY, 1980

UNITED STATES INTERNATIONAL DEVELOPMENT COOPERATION AGENCY
AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D C 20523

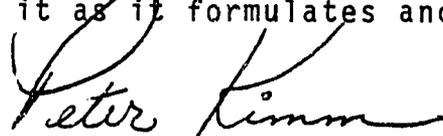
FOREWORD

This study was conducted by the Foundation for Cooperative Housing in cooperation with representatives of the Government of Paraguay under the auspices of the Office of Housing of the Agency for International Development and through financing provided by this office. The purpose of the study was to develop information and make recommendations relating to the shelter sector in Paraguay and was in response to a request from the Government of Paraguay.

The study team consisted of Kraig Baier, Jaime Rodriguez and Larry Salmen. Ted Priftis and Charles Van Fossen, also of the Foundation for Cooperative Housing contributed to this endeavor. Field work was completed in December 1979.

The findings and recommendations of the study are for the purpose of discussion and review and are not to be considered as the official position of either the Agency for International Development or the Government of Paraguay.

We hope, however, that the Government of Paraguay will find the report and its recommendations useful to it as it formulates and implements its future shelter programs.



Peter M. Kimm
Director
Office of Housing

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 - b. IPVU
 - c. BNT
 - d. CREDICOOP
 - e. SENASA
 - f. CORPOSANA
 - g. Municipal System
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 5. Technical and Cost Data

ABBREVIATIONS

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GOP	Government of Paraguay
AID	Agency for International Development
BID	Banco Interamericano de Desarrollo (Interamerican Development Bank IDB)
BNAP	Banco Nacional de Ahorro y Préstamo para la Vivienda (National Savings and Loan Bank)
BNT	Banco Nacional de Trabajadores (National Workers Bank)
CREDESCOOP	Central de Cooperativas de Ahorro y Crédito (National Credit Union Central)
IPVU	Instituto Paraguayo de Vivienda y Urbanismo (Paraguayan Institute for Housing and Urban Affairs)
IBRD	International Bank for Reconstruction and Development - World Bank (Banco Mundial)
SENASA	Servicio Nacional de Saniamiento Ambiental (National Environmental Sanitation Service)
CORPOSANA	Corporación de Obras Sanitarias (Sanitary Works Corporation)
ANDE	Administración Nacional de Electricidad (National Electric Administration)
IBR	Instituto de Bienestar Rural (Rural Welfare Institute)
UNDP	United Nations Development Program (Programa de Desarrollo de las Naciones Unidas)
IDM	Instituto de Desarrollo Municipal (Municipal Development Institute)
SNAPV (S&L System)	Sistema Nacional de Ahorro y Préstamo para la Vivienda (National Savings and Loan System)
BIAPE	Banco Interamericano de Ahorro y Préstamo (Inter American Savings and Loan Bank)

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I. SHELTER SECTOR ASSESSMENT AND RECOMMENDATIONS

A. Overview of Sector Development

As are many developing countries, Paraguay today is at a point where the formal sector institutions and resources are not yet capable of fulfilling the shelter requirements of the majority of the population. At the same time, the traditional self development process is becoming increasingly more difficult, if not impossible, for the low income families to undertake, especially the poor urban dwellers.

Therefore, the fundamental issue that is apparent in the Paraguayan Housing situation is now and to what degree the public and private formal sector activities can or should be expanded and directed to low income families and, concurrently, to what degree the informal or "self development" housing processes can continue to provide adequate shelter for the majority of the Paraguayan families.

The formal shelter sector in Paraguay is still in a relatively new and growing period. The team's best estimate is that it accounts for roughly 15% of the annual shelter unit production on a countrywide basis and considerably less than one-half of the new housing solutions in the major urban areas. In fact, the formal sector only operates effectively in urban areas, leaving rural housing entirely to the informal efforts of farm and village families.

However, the increasing pace of urbanization has confronted the growing numbers of low-income families migrating to urban settings with a set of problems which by the very nature of urban living are only susceptible to solution by formal sector intervention in one form or another. Thus, an overall assessment of the current situation of the shelter sector in Paraguay must cite the need for expanded formal sector shelter capacity and activity to address the growing requirements of the growing number of low-income urban families.

There can be no doubt that Paraguay now faces serious and growing shelter and urban services problems - problems that have accumulated over years of only minor concern for the sector. In fact, only in the last decade has attention of any significant level been given to housing and urban development. In this light Paraguay stands at an important crossroads for the development of an effective formal shelter delivery system capable of serving the needs of its growing urban population as well as its heretofore unattended farm and village dwellers.

In the decade of the 70's, Paraguay established or expanded a network of public autonomous institutions to deal with housing, sanitation, urban infrastructure and services. They include the National Savings and Home Loan Bank (BNAP), the Paraguayan Institute for Housing and Urban Affairs (IPVU), the Sanitary Works Corporation (CORPOSANA), the National Environmental Sanitation Service (SENASA) of the Ministry of Health, the National Administration of Electrification (ANDE), and the Municipal Development Institute (IDM). Also several private sector institutions that participate in the shelter sector have developed including the Savings and Loan Societies (SNAPV), the National Credit Union Central (CREDICOOP) and the National Workers Bank (BNT).

These institutions have certainly contributed to a substantial overall improvement in the shelter and services conditions existing prior to their advent. However, the accumulated deficiencies in the areas of safe water supply, waste disposal and general community support services in both urban and rural areas built up during the decade of the 60's represent a formidable task. This problem is exacerbated by continuing population growth and migration. Thus, while headway has been made by the combined institutional performance noted above, the challenge is severe, and urbanization trends will continue to fuel it.

In the last few years Paraguay has commenced a process of economic growth unparalleled by any period of its recent history. This change has had a major impact in the spatial distribution of Paraguay's population and has surely generated additional employment opportunities as well. The manner in which revenues from Paraguay's increased domestic production have been distributed through the various segments and centers of the country's population is not easily discernible in the absence of more up-to-date census data. Nevertheless, certain general observations may be made which relate population shifts to economic growth, particularly as related to the country's low income population.

The poor of Paraguay are making significant moves in response to increased employment opportunities in two major directions; they are proceeding from three major areas. As documented by data going back to 1962 but in rapidly increasing absolute if not relative terms, the Paraguayan poor are moving to the far eastern parts of the country, along the border with Argentina to the south and Brazil to the north. This move is in response to the rich agricultural potential of this area, particularly for cotton production - which has increased tenfold in the years 1973-1979 during a period of rising prices in the world market - and to the demand for service and construction jobs created by the building of the Itaipu dam in Ciudad Presidente Stroessner. The move to agricultural land has been encouraged by the Paraguayan Government's colonization program which is moving tens of thousands of families to the fertile farming land of this eastern area of Paraguay. The other major direction for migration is toward the metropolitan area of Asuncion, particularly those municipalities contiguous to but not part of Asuncion proper. This latter move is more traditional than the move to the east and is in response largely to the growing commercial activity in Asuncion, which continues to be the hub of Paraguay's economic, social and political life. While factual documentation is sparse, it is likely that the immigrant in Greater Asuncion may be in a more precarious economic situation than his or her compatriot moving eastward, the move to the big city being made in a conscious sacrifice of job security for a location which would offer greater potential for future socio-economic advancement.

The places from which people appear to be moving are: 1) the poor central region of small uneconomic farms, an area of outmigration for over twenty years; 2) the inner city of Asuncion, now too expensive for the poor; 3) and from outside of Paraguay, largely across the border from Argentina, a reverse international migratory flow which is the most recent of the three sources of migration and which, more than any single factor, explains the hope and the reality underlying the development of Paraguay, as seen by its poor majority.

By far the largest portion of housing in Paraguay is supplied through the so-called informal or non-formal sector. The Paraguayan family has been in the past and will be in the future largely responsible for providing shelter for itself with only minor assistance from the formal sector. Considering the importance of this informal production, little if any research has been done in

order to better understand how this is done, or even to quantify it. Few programs have been developed to facilitate or support the family's housing efforts. Roughly speaking at least 80% to 85% of the existing housing stock has been produced through informal methods. A similar proportion of the current annual production of shelter units is attributable to the informal sector, a fact that is not surprising considering the large proportion of the rural and small village population in Paraguay.

In contrast, direct public sector support for housing has been limited especially in terms of numbers of units produced or financed. Direct government investment in housing has amounted to only about \$3 million since 1965, most of this to IPVU. In addition, the government has provided institutional budget support to IPVU amounting to about \$2.5 million since its founding in 1964. The private formal sector activities have, during the last 6 years, increased substantially due principally to the operations of the National Savings and Loan System. Close to \$100 million in savings has been channeled into housing through the System since its founding in 1973. External borrowing for housing by both IPVU and BNAP amounted to roughly \$17.5 million as of 1979.

The efforts of the formal sector institutions both public and private have not, for the most part, been directed to below median income Paraguayan families. Although IPVU has tried, its past programs and a proposed sites and services program reach no lower than families in the second quartile in urban areas. Yet the poor in the areas where these programs are located are basically in the first quartile. BNAP has made considerable effort to reach lower income families through the AID Housing Guaranty program; however, this represents only a small fraction of the financial resources of the Savings and Loan System.

Neither institution was set up to serve rural or small village families and neither has made investments outside the major urban areas in Paraguay. Together IPVU and BNAP have financed an average of 1630 units per year over the last 7 years. The combined 1979 production of both institutions is estimated at 2650 units. This means that the public/private sector housing institutions have provided for roughly 10% of the estimated increase of the housing stock since 1972.

Presently there is considerably more government attention to the provision of urban infrastructure and services, especially in the larger towns and cities. Public investment in water supply and waste disposal has been increasing and directed to some degree to interior regional cities and market towns. CORPOSANA has completed water systems in 9 interior cities and continues to expand the Asuncion system. SENASA is working on a program to install water systems in approximately 50 smaller (less than 4,000) cities. Nevertheless, these services are still well behind the expansion of residential land development. New housing projects located on the fringe of developing areas generally have difficulty getting water hookups. This is a problem in both Greater Asuncion and in the major urban centers where housing projects are usually built. Also the methods of charging for installation cost and the fee structure, make it especially difficult for the poorer families to afford these services.

There are considerable restraints in the delivery system that effectively exclude most of the poorer families from formal housing production. Due to the relatively minor priority evidenced on the part of the GOP which currently provides little direct guidance or support for the sector to the non-awareness of

TABLE I-1

Viviendas construidas por el I.P.V.U.

AÑO	NUMERO DE VIVIENDAS	PORCENTAJE	PORCENTAJE ACUMULADO
1966	30	0.5	0.5
1967	154	2.7	3.2
1968	378	6.5	9.7
1969	1.265	22.0	31.8
1970	773	13.4	45.2
1971	239	4.1	49.4
1972	264	4.5	53.9
1973	307	6.7	60.6
1974	322	5.6	66.2
1975	380	6.6	72.8
1976	607	10.6	83.4
1977	502	8.7	92.2
1978	222	3.0	26.0
1979	225	3.0	----
TOTAL	5.746	100.0	100.0

Viviendas Construidas por el S.N.A.P.V.

AÑO	NUMERO DE VIVIENDAS	PORCENTAJE	PORCENTAJE ACUMULADO
1973	315	3.6	3.6
1974	692	7.9	11.5
1975	920	10.5	22.0
1976	1.134	12.9	34.9
1977	1.248	14.4	44.3
1978	2.392	27.3	76.6
1979	2.046	23.4	----
TOTAL	8.747	100.0	100.0

the poor families of the basic health and housing relationships, housing in Paraguay until quite recently was not recognized as a matter for concern or as an opportunity for development. Only within the last decade have institutions been formed to attend to urban development and housing problems and not until the last five years have these institutions been concerned with such problems outside Asunción. In this light the rapid development of the Savings and Loan System has provided an important development opportunity for Paraguay. The fact that its growth has been mainly the result of savings from, and lending to the middle income urban population only reflects normal market operations.

B. General Recommendations for Sector Development

1. Both the scale of the problem, and the current stage of development of the institutions, public and private working in the sector indicate the serious need for the articulation and establishment of an official framework, and guidelines for the sector. A national housing policy formulation exercise should be mounted by the GOP, aimed at providing such a framework, and leading to a national housing plan, increased allocation of resources and higher sector priority. Such an exercise should also identify and/or establish institutional roles, specifically the public body responsible for overview, synchronization of efforts and the multitude of functions normally attributable to a Ministry or Sub-secretariat for Housing and Urban Development.

2. Shelter sector institutions have developed to the point where greater specialization along functional lines must be sought. The linkage between housing finance and housing supply in particular as it effects the growing number of below median income urban families must be made more efficient. The role and relationship of BNAP (and the system it oversees) with IPVU must be studied, defined, and set within the framework referred to in 1) above. BNAP's legal mandate to guide the resources of the Savings and Loan System, legal authority to finance or refinance housing activities through cooperatives, the National Workers Bank, IPVU or other institutions and to participate directly in financing low cost housing should be established, through revision of its law as necessary.

A greatly expanded role for IPVU as the public institution dealing strictly with low income families, dealing with increasing production of low income solutions in both the informal and formal sectors and in planning and coordinating urban development programs on a national scale is recommended. Since the present law of IPVU is ample as to the authority to carry out this role, perhaps legislative action will be unnecessary. Formal working relationships should be established between BNAP and IPVU. The principal emphasis and justification for modification of the institutional structure should be to facilitate a more effective and greatly expanded formal sector action in providing housing to the poorer Paraguayan families, both urban and rural.

3. Towards the end of creating a more effective mechanism for the overall planning and control of the problems generated by urban growth it is recommended that the municipal and regional planning process be strengthened. The cities, as they grow in size should be given an increasing role in addressing the process and the problems of growth within their boundaries and environs. To be effective the larger effort must be interinstitutional and involve the respective municipal

governments, IDM, IPVU, CORPOSANA, ANDE and other agencies concerned with the urban problems. One of the principal objectives should be to establish the basis for coordination of institutional action, private sector development activities and central government policies. Directing and controlling residential development, in an arena where heretofore it has been occurring in a free market environment will not be an easy task. However the alternative of continuing the present practice implies real and significant restraints to the provision of basic urban services and shelter, especially to the poorer urban families who for all practical purposes are now excluded from the process.

4. The expansion required to effectively address the increasing need and effective demand for shelter and urban services will only occur with substantial increases in the financial resources, public and private, mobilized to this end.

Additional sources of funds for shelter sector finance must be developed. These sources may include GOP budget funds, mortgage backed bonds, secondary mortgage market certificates, special savings plans or payroll savings plans, social security funds, pension funds or others. Access to operations of the newly-established capital market may be beneficial for marketing mortgage-backed instruments. The expanded use of external borrowing with GOP guarantee in conjunction with internal funds should also be considered.

As a corollary to this recommended increase in financial resources, it is further recommended that BNAP, as both spokesmen and public supervisory agent of the single most important housing finance system be granted membership, or formal participation in the appropriate body where decisions affecting the allocation of national financial resources are made.

5. Increased production of shelter and support of the informal housing system for poorer urban families should be fostered. Attention to this problem will not occur spontaneously; it should be promoted, GOP sponsored, and will probably require incentives. This is a major task of both BNAP and IPVU to promote more production by the private sector of low cost solutions. Both BNAP and IPVU must recognize that the informal methods of production principally employed by the poorer families represent a significant contribution to the housing stock and that action to facilitate this process can and should be initiated. Credit can be channeled to this sector, and ways of improving the housing built can make this credit more secure and productive. BNAP's efforts in this line of channeling credit through cooperatives to lower income families is beginning to show some positive results, there are still more opportunities for expansion.

A study of the informal housing activities in both urban and rural areas should be undertaken. In support of this recommendation studies should be undertaken to identify the construction methods used, resources applied, sources of funds, small builders, methods of securing land and other information enabling a better understanding of this process. An effective mechanism to support and facilitate these self development processes by public and private formal institutions should be sought.

6. While recognizing that providing housing in the current scattered rural context is impractical, if not impossible, some convenient action on the part of the formal public and private sector should be initiated to alleviate some of the more serious health related deficient housing conditions in these areas. Assistance to rural shelter needs should take the form of improved services.

II. Economic Situation

The economy of Paraguay has registered a 7.1% annual growth of GDP in the past decade. Projections for the next decade are a sustainable 10% annual increase in real terms. The causes are increasing colonization of virgin land, a policy of encouraging private domestic and foreign investment, and a vigorous GOP promotion of infrastructure--access roads, marketing facilities, hydroelectric projects--which provides a climate for private endeavor. In this investment climate, foreign capital has offset the deficit on current account in the balance of payments and foreign exchange reserves have consistently increased. The GOP debt service ratio is low and is expected to average a still lower 10% over the next 5 years, attesting to the GOP's eminent creditworthiness.

A. Economic Performance and Prospects

A first impression of the Paraguayan economy is that it has produced a quite healthy rate of growth in the past decade without any significant structural change. This impression is correct in one sense; but it does not reflect the substantial changes which have occurred recently in the composition of agricultural output nor does it fully indicate the potential impact of the huge hydroelectric projects now under construction.

Table II-1 shows the essentially static structure of production within the total economy. The agricultural sector as a whole has registered a rather constant percentage of GDP, varying from year to year in response to changes in weather and in the international prices for its exports. Agriculture accounts for about 35% of GDP. In absolute terms, however, the value of the agricultural sector output as a whole rose on an average of 8.1% per year (1970-1977, in 1972 constant prices), somewhat higher than the 7.1% annual growth of GDP.

Within the agricultural sector, there have been some basic changes in response to government investments in infrastructure (primarily roads and marketing facilities). New lands have been opened up to colonization and to commercial use. The consequent increase in agricultural output has been impressive. While livestock and forestry products have decreased in relative importance, the production of cotton and soybeans has boomed. Cotton production was up at a compound rate of 29.1% per year, 1970-77; soybeans at 36.3% per year. The two commodities accounted for 82% of merchandise exports, 1975-1977.

Paraguay has so much virgin land suitable for crop production that the extensive expansion without emphasis on increased yields per acre which is taking place makes good sense: it provides the quickest payoff on public sector infrastructure investments and relieves the relative concentration around Asuncion. Agriculture will continue to be the mainstay of the economy, employing over 50% of the labor force and accounting for 95% of export earnings.

Industry accounts for about 20% of GDP and 16% of employment. While a relatively constant percentage of GDP in the past decade, the absolute value of production has kept pace with the overall growth of GDP. Industry is based mainly on processing agricultural goods, is characterized by small industry, and serves primarily the domestic market. Industry has not been overly protected. The large volume of unregistered trade with other countries

Table II-1

Percentage Composition of GDP by Sector
Current Prices, 1965-1972

	<u>1965</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
<u>Agriculture</u>	<u>36.7</u>	<u>32.1</u>	<u>33.2</u>	<u>34.5</u>	<u>37.7</u>	<u>35.3</u>	<u>36.9</u>	<u>34.6</u>	<u>34.1</u>
Agriculture	21.0	17.8	18.4	17.6	20.6	19.6	19.8	21.0	22.5
Livestock	11.5	9.7	10.5	12.8	13.1	11.7	12.5	10.0	8.3
Forestry	4.0	4.4	4.2	4.0	3.9	4.0	4.5	3.5	3.2
Other	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
<u>Industry</u>	<u>18.1</u>	<u>19.6</u>	<u>19.5</u>	<u>19.0</u>	<u>18.9</u>	<u>21.4</u>	<u>19.6</u>	<u>20.4</u>	<u>21.4</u>
Industry	15.5	16.7	16.4	16.2	16.0	18.1	15.6	16.0	17.1
Construction	2.4	2.8	2.9	2.6	2.7	3.2	3.8	4.2	4.0
Mining	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3
<u>Infrastructure</u>	<u>5.0</u>	<u>5.0</u>	<u>5.1</u>	<u>5.3</u>	<u>5.0</u>	<u>4.9</u>	<u>5.4</u>	<u>5.8</u>	<u>5.6</u>
Electricity	0.5	0.9	1.0	1.1	1.3	1.0	1.2	1.5	1.5
Water & Sewerage	0.1	0.2	0.2	0.3	0.2	0.2	0.2	0.2	0.2
Transport and communications	4.3	3.9	3.8	3.9	3.5	3.7	4.0	4.1	3.9
<u>Other Services</u>	<u>40.2</u>	<u>43.3</u>	<u>42.2</u>	<u>41.2</u>	<u>38.4</u>	<u>38.4</u>	<u>38.1</u>	<u>39.2</u>	<u>38.9</u>
Commerce and finance	22.8	24.4	24.1	23.0	23.0	23.7	22.9	24.1	25.0
General government	3.8	5.3	5.0	4.7	3.8	3.2	3.4	3.6	3.9
Housing	3.4	3.0	2.8	2.7	2.3	2.4	2.6	2.6	2.3
Other	10.2	10.6	10.3	10.8	9.3	9.1	9.1	9.0	7.7
Total GDP	<u>100.0</u>								

Source: Central Bank

Table II-2

Aggregate Supply and Demand, 1970-1972
(in billions of 1972 guaranies)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Aggregate Supply	<u>101.7</u>	<u>107.0</u>	<u>110.3</u>	<u>121.1</u>	<u>132.9</u>	<u>141.1</u>	<u>156.8</u>	<u>179.1</u>
GDP	88.3	92.2	96.9	104.5	113.2	118.8	127.8	142.9
Imports	13.4	14.8	13.4	16.6	19.7	22.3	29.0	36.2
Aggregate Demand	<u>101.7</u>	<u>107.0</u>	<u>110.3</u>	<u>121.1</u>	<u>132.9</u>	<u>141.1</u>	<u>156.8</u>	<u>179.1</u>
Consumption	76.7	81.5	82.4	86.1	95.7	99.1	107.1	119.0
Private	(69.0)	(73.7)	(74.6)	(78.8)	(88.5)	(90.3)	(98.1)	(109.7)
Public	(7.7)	(7.8)	(7.8)	(7.2)	(7.2)	(8.8)	(9.0)	(9.3)
Investment	12.6	13.5	14.6	21.2	23.4	28.7	35.8	44.0
Private	(8.7)	(9.1)	(8.9)	(14.1)	(16.4)	(18.0)	(22.8)	(31.4)
Public	(3.0)	(3.4)	(4.3)	(4.2)	(4.1)	(6.3)	(8.9)	(9.3)
Inventories	(0.9)	(1.0)	(1.3)	(2.9)	(3.0)	(4.4)	(4.1)	(3.3)
Exports	12.4	12.0	13.3	13.8	13.8	13.3	13.9	16.1

Sources: Central Bank and World Bank estimates.

has forced domestic industry to respond efficiently to market demand rather than to take advantage of import substitution protection.

The present government, which assumed power in 1954, has provided political stability and an economic policy favoring private enterprise. Table II-2 is a picture not characteristic of many developing countries. Since 1970, public sector consumption has grown less rapidly than private sector consumption (2.7% per year versus 6.8% per year); and public sector investment has grown less rapidly than private sector investment (17.5% annually versus 20.1% for private investment).

The most dramatic public sector investment program is in hydroelectric projects to develop the enormous potential of the Parana River. The largest of three projects under construction, Itaipu, is being built jointly by Brazil and Paraguay at an estimated cost of \$6 billion. It will have an installed capacity of 12,600 MW, expandable to 21,000 MW. When completed in 1982, it will be biggest hydroelectric installation in the world and will increase Paraguay's present installed capacity of 288 MW by more than forty-fold.

A second project, Yacyreta, will be built in partnership with Argentina at an estimated cost of \$3.4 billion. When brought into production in 1983, it will have an installed capacity of 4,050 MW, expandable to 6,000 MW.

B. The Balance of Payments and External Debt

Table II-3 confirms the importance of the GOP policy of encouraging private foreign investment and the hydroelectric power projects. Exports have increased steadily since 1970 (see Table II-2) and more rapidly since 1975; but there has been a still faster increase in imports attributable to the demand associated with high growth and income. The proportion of capital goods in total imports has increased. But the growth in the capital account balance has more than compensated for the resultant increase in the current account deficit.

The net result has been a consistent increase in foreign exchange resources. Since much of the public sector external debt has been obtained on concessional terms (an average of 4% interest rate), the debt-service ratio on its external debt of \$532.3 million at the end of 1979 was under 15%. Despite rapidly increasing import requirements, the World Bank projects that the ratio will be about 10% through 1983. Export growth and a 10% annual increase in GDP which is projected over the next 5 years will continue to make the external debt easily manageable. Paraguay is eminently creditworthy.

Table II-3

Balance of Payments, 1970-1977
(millions of US \$)

	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Current Account Balance	<u>-16.4</u>	<u>-22.4</u>	<u>- 5.3</u>	<u>-10.0</u>	<u>-54.2</u>	<u>-89.6</u>	<u>-105.2</u>	<u>-133.4</u>
Goods and services	(-11.7)	(-20.1)	(- 0.6)	(- 5.7)	(-45.4)	(-90.3)	(-94.3)	(-119.0)
Transfer payment	(- 4.7)	(- 2.3)	(- 4.7)	(- 4.3)	(- 8.8)	(0.7)	(-10.9)	(-14.4)
Capital Account Balance	<u>18.8</u>	<u>25.9</u>	<u>20.4</u>	<u>29.6</u>	<u>54.4</u>	<u>126.4</u>	<u>167.6</u>	<u>291.5</u>
Private	(11.4)	(16.4)	(12.9)	(19.9)	(38.7)	(52.9)	(43.9)	(52.0)
Government	(7.4)	(9.5)	(7.5)	(9.7)	(14.2)	(27.9)	(47.0)	(90.5)
Binational power entities	--	--	--	--	(1.5)	(45.6)	(76.7)	(149.0)
Short-term Capital and Errors and Omissions	<u>6.1</u>	<u>- 0.6</u>	<u>- 4.7</u>	<u>3.0</u>	<u>30.1</u>	<u>- 7.8</u>	<u>-22.4</u>	<u>-49.8</u>
Change in Reserves (negative = increase)	<u>- 8.5</u>	<u>- 2.9</u>	<u>-10.4</u>	<u>-22.6</u>	<u>-30.3</u>	<u>-29.0</u>	<u>-40.0</u>	<u>-108.3</u>

Source: Central Bank

III. POPULATION CHARACTERISTICS

In the last few years Paraguay has enjoyed a process of economic growth unparalleled by any period of its recent history. In this connection, the poor of Paraguay in response to increased employment opportunities are making significant moves in two major directions: a) increasing urbanization by tens of thousands of families of virgin farmlands in the far eastern regions of the nation adjacent to the borders with Argentina and Brazil has resulted. This flow to the east has been further augmented in response to the demand for service and construction employment created by the building of the ITAIFU dam in Ciudad Presidente Stroessner.

b) The other major direction for migration is toward the Metropolitan area of Asuncion, particularly those municipalities contiguous to but not part of Asuncion proper. This latter move is the more traditional, and responds to the still growing commercial activity in Asuncion, which continues to be the hub of Paraguay's economic, social and political life.

The increasing numbers of urban poor are confronted with a set of problems which by the very nature of urban living are only susceptible to solution by formal sector intervention in one form or another. Despite increasing institutional attention to producing the infrastructure support for this growing urban population, accumulated deficiencies of potable water supply, waste disposal and general community support services represent a formidable task.

A. Overall Demographic and Social Structure

Relative to other countries of Latin America, Paraguay has a homogeneous and largely rural population. Only in the last few years have the people of Paraguay experienced major changes from a way of life, dominated by commerce and agriculture, which had been one of the stablest, and at the same time, least materially developed in the entire region. The very recent demographic changes, as regards both the magnitude and the location of the Paraguayan population reflect the dramatic dynamism and nature of the country's economy, as described in the preceding section of this Assessment.

The population of Paraguay has been growing and urbanizing at a slightly accelerating rate over the last thirty years. As of December 1979 it is estimated that the population of Paraguay has almost reached the three million mark, 2,996,000; including 1,485,515 males and 1,510,485 females. The present annual rate of growth of the population as a whole is estimated at 3.2 percent, a point to which it has climbed at an ever increasing rate from 2.6 held during the years 1960 to 1965, 2.7 from 1965 to 1970 and 2.8 from 1970 to 1975. This is a reverse trend from the Latin American region as a whole, which has declined on an average from 2.8 to 2.7 during this thirty year period.

Underlying the overall population growth are two trends which suggest improvement in the living conditions of the Paraguayan people. As has happened earlier in most of the other countries of Latin America, the death rate in

Paraguay has been decreasing at a faster pace than the birth rate, the former having declined from 15.8 per thousand in the 1950-55 period to an average of 8.1 in the years 1975-80, while the latter dropped from 45.5 to 39.1 in this same thirty year space of time. During these same thirty years life expectancy in Paraguay has jumped from 51.5 to 63.6.^{1/} The second major cause of this accelerating and high growth rate is declining emigration, largely to Argentina, which dropped from 5.13 percent in the five year period 1955-60 to 2.96 percent in the 1970-75^{2/} period and appears to have reversed to a net immigration flow over the last two years as Paraguayans return to take advantage of the rising wages occasioned by the recent and continuing boom in agricultural production and the increased employment occasioned by the Itaipu and Yacyreta construction dam.

As was the case in overall demographic growth, the trends in urbanization seem to place Paraguay in the first stage of a process through which other societies of the Latin American region have already passed. The urban population of Paraguay is estimated at 1,104,000 in mid-1979, or 37.1 percent of the country's entire population. These figures overstate the urban nature of Paraguay as the National Census of 1950, 1962, and 1972 define the urban population as that which "lives in cities or towns, heads of departments and districts, without taking into account the size of the population." The population living in urban places over 2000, which some countries define as the urban/rural cut-off point, in mid-1979 was 31.3 percent of the country's total while that in cities over 20,000, defined by others and the United Nations as the cut-off figure, comprises only about a quarter (24.4 percent) of Paraguay's total population, the lowest of any country in South America.

Similar to Peru, Argentina, and Chile, the urban distribution of Paraguay shows a macrocephalic pattern: close to two-thirds (64.7%) of Paraguay's population living in cities of over 2,000 in mid-1979 live in the Greater Asuncion area.^{3/} Demonstrating the dominance of the capital, Asuncion and its surrounding satellite municipalities is the fact that the next largest urban agglomeration, Ciudad Presidente Stroessner is less than one-tenth (8.3%) the of Greater Asuncion, and was smaller than eight other municipalities as recently as 1972.^{4/} Despite the fact that Asuncion remains one of Latin America's slowest growing cities (Greater Asuncion grew at slightly over this rate), more growth is occurring in Paraguay's major urban centers than is occurring in those of most of Latin American countries. Again, the trends reverse: whereas the average annual growth of population in Paraguayan localities with more than 20,000 increased from 3.4 in the decade 1950 to 1960 to 4.3, 1960-70, and most recently, 1972-79, to 5.3, the average corresponding rate for Latin America went down from 4.6 to 4.4 during the first two of these periods and presumably has continued to decline to the present. The positive correlation and the accelerating economic growth of Paraguay's recent history is a testament to the often observed fact that demographic change reflects the pattern and nature of a country's overall development.

^{1/} The World Bank, Paraguay: Economic Memorandum, Washington, D. C., June 1979, p.50

^{2/} Plan Nacional de Desarrollo Economico y Social, 1977-81, Tomo 1, Secretaria Tecnica de Planificacion, Asuncion, Dec. 1976, p. 150.

^{3/} Asuncion, Fernando de la Mora, Lambare and urban areas of Luque and San Lorenzo.

^{4/} Ciudad Presidente Stroessner is the site of the Itaipu Dam, which will be the largest in the world when it commences operations in 1982.

One of the factors which eases the transition from country to city and between the various regions of the nation is the absence of any major cultural or ethnic divisions among the Paraguayan people. The least assimilated population group are the Indians, which are divided into 17 tribes and five linguistic groups.^{1/} Yet the indigeneous population, currently estimated at approximately 40,000,^{1/} is so small and spread out over most of the country, so diffuse, that it is a particularistic rather than general societal issue in Paraguay. The bulk of Paraguay's population, urban and rural, is not cut into clear social or economic subgroups. Socio-economic mobility appears to be increasing via the institution of the military and the rapidly expanding agricultural, commercial and construction sectors.

B. Human Settlement, Migration and Urban Growth

The most salient feature of Paraguay's settlement pattern is an unusual and constant macro-regional distribution of the nation's population, of which 97 percent inhabits only 39.3 percent of the country's total land area, while a mere three percent inhabit 60.7 of the nation's territory, the vast, semi-arid, area in the north-west known as the Chaco. Despite the Government of Paraguay's stated policy to develop this large mass of inhabitable land, it has not increased its small population of the country for the last twenty years, retaining a density of 0.3 inhabitants to the square kilometer. Rather, population growth and significant internal migration have taken place in the area of the country to the east of the Paraguay River, which has experienced an increase in population density from 10.9 inhabitants per square kilometer in 1962 to an estimated 18.1 inhabitants per square kilometer in 1979. Within Eastern Paraguay, as has been noted, the largely rural (68.0 percent) population has been urbanizing at an ever-increasing rate but, as important and related to this process have been two major thrusts of internal migration which have accompanied the major areas of economic growth over the past decade.

Being a predominantly rural country the population shifts which have taken place in Paraguay over the past thirty years have been largely a reflection of the changing nature of agricultural productivity and employment during this time period. The dominant move has been away from the impoverished area of small farming plots (minifundia) in the Central Departments of the country to the fertile areas in the eastern half of eastern Paraguay and to the metropolitan area of Asuncion. The former moves to the east have been both spontaneous and part of organized rural colonization programs sponsored by the Paraguayan Government. Illustrative of these trends are census data which show that in 1950 the four Departments of Central, Paraguari, Cordillera and Guaira, together with Asuncion contained 57.9 percent of the country's population in an area comprising only 4.1 percent of its land mass, while 22 years later, in 1972, the proportion of the country's population in this area had diminished, despite the inclusion of Asuncion, to 52.2 percent. During this same period 1950-72, the area receiving the greater migration, the Eastern Departments of Caaguazu, San Pedro, Alto Parana and Amambay, grew from 12.3 to 21.3 percent of the nation's population. While the absence of census data by Departments since 1972 makes estimates difficult, regional data for the last five years of this period for which data are available, 1967-72 highlights the intensity of these trends, disaggregating the capital of Asuncion.

^{1/} Interviews with Margarita Cardenas, Peace Corps, and Teresa Pinillas, UNICEF, Asuncion, November 15 and 19, 1979.

TABLE III-1
REGIONAL MIGRATION 1967-72

<u>Capital and Regions*</u>	<u>In-migrants</u>	<u>Out-migrants</u>	<u>Net Migration (%)</u>
Capital	53,810	27,770	31.9
Norte	26,460	28,360	-3.5
Central	35,520	63,520	-28.3
Misiones	2,750	9,040	-53.4
Alto Paraná	21,920	7,910	47.0
Chaco	6,260	10,110	-23.5

Source: Domingo M. Rivarola et al, La población del Paraguay, Centro Paraguayo de Estudios Sociológicos, Asunción, 1974, p.115

* Norte: Concepción, San Pedro, Gaaguazú, Amambay; Chaco: Pte. Hayes, Boquerón, Olimpo; Central: Cordillera, Central, Guairá, Paraguari, Caazapá; Misiones: Misiones, Ñeembucú; Alto Paraná: Itaipú and Alto Paraná

Since 1977, these two migratory trends have continued with greater relative growth occurring in the east and greater absolute growth in the Metropolitan area of Asuncion. The former has been given an impetus by the aforementioned Itaipu dam construction and the services related to it, together believed to account for the creation of over 50,000 new jobs in the 1974-79 period in the region surrounding Ciudad Presidente Stroessner in Alto Parana, while the growth of Greater Asuncion may be levelling off, partly due to the attraction of the agricultural boom and dam construction employment in the east and partly to the low level of industrialization and related employment which continues to typify Asuncion as it does Paraguay itself.^{1/}

Urban Growth

Given the primarily agricultural and commercial nature of Paraguay's economy, together with its unique hydroelectric power potential, it is not surprising that it is those areas that are experiencing the most rapid growth in these three sectors that are also the sites of the most rapidly growing cities. Similarly, those areas of the country which are undergoing economic hardship due to low agricultural production, primarily the minifundia region in central Paraguay, are witness to cities which have been stagnant or even declining in absolute population over the recent past. The fastest growing municipalities, outside the already mentioned Puerto Presidente Stroessner, both in relative and absolute terms, are those which border Asuncion, Fernando de la Mora, Lambare, Luque and San Lorenzo. These are the sites of many new, generally unserviced housing developments, often single or small connections of plots sold at term to migrants, arriving either from the city of Asuncion, where rapidly rising land prices are pushing out many of the poorer residents, or from the interior of the country. The other rapidly growing areas are those which serve primarily as service centers for areas of major agricultural colonization, such as Caaguazu, or have a catalytic role in commerce, such as Pedro Juan Caballero, on the border with Brazil. Table III-2 shows the municipalities of Paraguay which had an urban population of over 5,000 in 1972, with their present-day population estimated on the basis of 1962-72 growth rates and other available information.

A general observation that may be made from the pattern of urban growth in Paraguay is that the small towns of between three and eight thousand population appear to be losing population in relative terms growing less quickly than the country as a whole, while greater Asuncion, a group of regional urban centers which border eastern Paraguay, Encarnacion, Pilar, Concepcion, Pedro Juan Caballero, Ciudad Pte. Stroessner and one central crossroads city, Coronel Oviedo, are gaining population, partly at the expense of these little atrophying towns. In a survey of two such small places, Carapegua and General Artigas, each having a population of about 3,500 at the time of the 1972 census, Judith F. Laird revealed an age distribution symptomatic of stagnant or declining populations. Whereas less than 15 percent of the total Paraguayan population is composed of persons aged 45 and above, over a quarter of these towns' population fall into this category. Similarly, while the population of Paraguay is predominantly young, with 45.1% under 15 years of age in 1975, these two towns averaged only about a third (32.5%) in this young age group. The dependent population (0 to 14 and over 60) for both

^{1/} The proportion of the labor force employed in industry has remained at 14% from 1962 to 1979 and is expected to remain at this level in the foreseeable future; interview with Dr. Ramirez Russo, Deputy Minister, Ministry of Industry and Commerce, Asuncion, November 20, 1979.

TABLE III-2
CITIES OVER 5,000 POPULATION IN 1972

City	P O P U L A T I O N			Average Annual Rate of Growth (1962 - 72)
	1962	1972	1980	
Asunción	288,900	392,700	479,600	3.1
Fernando de la Mora	10,200	36,800	57,500	13.7
Lambaré	8,300	31,700	49,900	14.3
Encarnación	18,700	23,300	27,900	2.2
Pedro Juan Caballero	10,400	21,000	31,700	7.3
Concepción	18,200	19,400	20,300	0.6
Villarrica	16,100	17,700	18,800	0.9
Luque	11,000	13,900	16,800	2.4
Coronel Oviedo	9,500	13,800	18,500	3.8
Pilar	5,300	12,500	17,800	9.0
San Lorenzo	8,600	11,600	14,700	3.0
Caaguazú	2,300	8,000	13,800	13.3
Caacupé	6,300	7,300	8,100	1.5
Pto. Pte. Stroessner	-	7,069	34,000	32.2
Itá	6,300	7,000	7,600	1.1
San J. Bautista	6,000	6,500	6,900	0.8
San Ignacio	5,100	6,100	6,900	1.8
Ypacaraí	5,300	5,200	5,100	-0.2
Paraguarí	4,800	5,000	5,100	0.4

towns was 46.9%, below that for the country age as a whole, 51.8% in 1972. Most of the migrants coming to these cities, 83% in one case and 61% in the other, had come from smaller towns or rural areas.^{1/} It appears that many of the people of towns of this size in Paraguay continue their process of step-migration to the larger, regional centers.

C. Characteristics of the Low Income Groups

In Paraguay, poverty is the condition of the majority of the population. Data on income distribution is not readily available in Paraguay but what studies have been done indicate that, even allowing for home consumption among the rural majority, over half (52%) of the country's population falls under the poverty line established by USAID (estimated at \$473 per capita annual income, as of January 1, 1980). When we take straight monetary income, the poor majority rises to almost two-thirds (63.6%) of the population of Paraguay. For purposes of this analysis, considering the importance of goods produced and consumed at home but not purchased by the average rural family, rural incomes include an imputed value for home consumption.^{2/} Exacerbating the extent of poverty in Paraguay is the highly skewed distribution of income among the population, wherein the top 5% of income earners receive 30.5% of total income while the lowest 40% received only 9.6% in 1970-71.^{3/} Despite the very high rate of overall growth in the Paraguayan economy over the past few years and a per capita income that has been rising at 15% a year and is expected to reach \$935 by January, 1980, the highly skewed nature of the country's income distribution shows little sign of changing, as indicated by the estimated median per capita annual income, (including consumption) for the rural two-thirds (68.7%) of the country, which for the same period estimated at about \$435.^{4/}

The great majority (80%) of the poor are located in the rural areas of the country, places with population of under 2,000. The remaining fifth of the population falling under the poverty line are divided between secondary and smaller cities (8.6%) and greater Asuncion (11.4%). In absolute figures, a population breakdown for those persons living in poverty, including consumption for the rural group, for January 1, 1980, may be seen in Table 111-4.

Taking each of the three major population groups separately, one sees that well over half of the rural population (60.7%) falls within the poverty group, even when including consumption. On a straight income basis, 5/6's (83.1%) of all rural families in Paraguay may be considered to live in conditions of poverty. This figure is borne out by the poor housing conditions of the rural population, 66% of whom live in houses with mud and wattle construction and an even larger proportion, 80%, live in houses with no floor but the earth on which they were built.^{5/}

^{1/} "A Study of Income Structure in Two Paraguayan Towns," USAID/Paraguay, p. 17, 18, 43, 49-51.

^{2/} The increment estimated for rural consumption is 82% of real per capita income, or 45% of annual family income. Judith Laird and David Vera, Rural Women in Paraguay; the Socio-Economic Dimension, Asuncion, May 30, 1978, P. 23.

^{3/} Urban Household Income and Consumption Patterns in Latin America, The Brookings Institute, 1974.

^{4/} 433.28, based on the three studies referenced in Table 111-5, weighted for household size of locality and taking into account annual inflation ratio of 10.6 and 27% in 1978 and 1979, respectively.

^{5/} "Solicitud de Prestamos; Proyecto Lotes con Servicios," Tomo 1, Instituto Paraguayo de Vivienda y Urbanism, Asuncion, October 1979. n. 6-7

TABLE 111-3
MAJOR POPULATION GROUPS OF PARAGUAY
ESTIMATES FOR JANUARY 1980

AREA/GROUP	<u>P O P U L A T I O N</u>	ESTIMATED ANNUAL GROWTH RATE JAN. 1980 (%)
I. GREATER ASUNCION TOTAL	<u>632500</u>	<u>3.4</u>
Ia. Asunción Proper	<u>479600</u>	<u>2.7</u>
Ib. Asunción Periphery	<u>152900</u>	<u>5.4</u>
1. Fernando de La Mora	57500	6.1
2. Lambaré	49900	6.2
3. Luque	16800	3.0
4. San Lorenzo	14700	3.3
5. Other	14000	3.0
II. INTERIOR URBAN AREAS	<u>305800</u>	<u>4.5</u>
IIa. Regional Urban Centers	<u>150200</u>	<u>6.4</u>
1. Encarnación	27900	3.4
2. Pedro Juan Caballero	31700	5.6
3. Concepción	20300	0.6
4. Coronel Oviedo	18500	4.0
5. Pilar	17800	4.8
6. Pto. Ñe. Strossner	34000	16.2
IIb. Other Urban Places (Over 2000 Pop.)	<u>155600</u>	<u>2.7</u>
III. RURAL VILLAGES AND FARMS (Under 2000 Pop.)	<u>2057700</u>	<u>3.0</u>
TOTAL POPULATION	<u>2996000</u>	<u>3.2</u>

Source: Team estimates from various population statistics and interviews with the census officials.

TABLE III-4
LOCATION OF THE POOR IN PARAGUAY
ESTIMATES JANUARY 1980

AREA/GROUP	POOR POPULATION Cash Income Basis		POOR POPULATION Cash and Imputed Income		TOTAL POPULATION		
	Number	% of Poor	Number	% of Poor	Number	% of Pop.	
I. GREATER ASUNCION							
	Number	177000	9.3	177000	11.4	632500	21.0
	% of Pop.	28.0		28.0		100.0	
II. INTERIOR URBAN AREAS (Over 2000)							
	Number	144000	7.6	134000	8.6	305800	10.2
	% of Pop.	47.1		43.8		100.0	
III. RURAL VILLAGES AND FARMS (Under 2000)							
	Number	1584000	83.1	1248000	80.0	2057700	68.8
	% of Pop.	77.0		60.7		100.0	
TOTAL PARAGUAY							
	Number	1905000	100.0	1559000	100.0	2996000	100.0
	% of Pop.	63.6		52.0		100.0	

Source: Team estimates based on various studies. Poverty line is based on \$150 percapita in 1969. Percapita annual family income for poverty line projected to January 1980 equal \$473. The equivalent average monthly family income is \$200 for an average family of 5.08 members.

Conditions in the small cities are not greatly improved over those in the countryside. In a study of two towns in southern Paraguay, Carapegua and General Artigas, each with a population of approximately 3,500 considered by the Instituto de Desarrollo Municipal to be representative of the small cities of the interior of the country, Judith Laird found almost half (48.4%) of the families living below the poverty line. The average median monthly household income of these two municipalities, \$175.27 at current dollars in January 1980, is not far above that of the rural population, \$158.61, when consumption is included for the rural group. While the physical conditions of the houses in these towns was better than in rural areas, the degree of public services was still low, with less than a third (28.5%) of the houses attached to a public water supply and less than a fifth (16.4%) connected to a sewerage system. As might be expected the poor families received the least public servicing; for instance, in General Artigas, only 11% of the poor were hooked up to the public water system compared to 21% for the population as a whole and three quarters drank from well water versus 67% for the sample surveyed.^{1/}

As is true for most developing countries but to an even greater degree in Paraguay, the poor make up a smaller proportion of the population of the dominant metropolitan area than they do of other areas. Of the greater Asuncion population only a little over a quarter (28%) of the population fall below the AID poverty line, in January, 1980.^{2/} Similarly, the median monthly household income for greater Asuncion, at \$325 is just over twice that for the rural population (including countryside) and close to double (1.86) that for the cities of the interior. Considering the near monopoly Asuncion has as a commercial, administrative and service center for the entire country, it comes as little surprise that the city's population is less impoverished than that of the hinterland. Yet there are aspects of poverty in greater Asuncion which are not revealed by the global statistics presented above.

As has been observed, in absolute terms the poor of Greater Asuncion are only slightly more in number than that of all other urban areas of the country. And, due to the rural/small town nature of the country's cities other than Greater Asuncion, life may be more arduous for the metropolitan poor with deficient services and less access to food than for other poor groups in the country. Interestingly the percentage of the population lacking access to an adequate sanitary system in Greater Asuncion (24%) is roughly the same as that falling below the poverty line (28%). And while perhaps the major advantage of living in a large city is the opportunity it provides for socio-economic mobility, fully 52% earn less than the minimum wage and worked as domestics, had part-time work or fluctuating incomes.^{3/} In the first semester of 1979 a census survey of 2640 households in Greater Asuncion revealed a slightly improved situation, with 42.6% of wage-earners receiving less than the prevailing minimum monthly wage of 15,500 guaranies (\$123) for their primary occupation. These figures present a bleaker picture than the actual inasmuch as there were 1.9 wage earners to a household in Greater Asuncion at the time of the 1979 census. Nevertheless, underemployment in Asuncion continues to be a problem and a factor contributing to the slow immigration relative to that of other Latin American capitals.

^{1/} Average for both towns, which, despite the disparity in conditions between the two, may be more reflective of the general situation in the small cities of Paraguay. A Study of Income Structure in Two Paraguayan Towns, Asuncion, January 12, 1978, p. 53-55.

^{2/} Encuesta de Hogares, Direccion General de Estadistica y Censos, Primer Semestre, 1979, updated by a factor of 20.25 to take into account inflation in intervening time period.

^{3/} Plan Nacional, Tomo 1, Op. Cit, p. 165-166.

While there are certain pockets of poverty within the municipality of Asuncion, especially those bordering the Paraguay River, Chacarita and the Banado Sur, rapidly rising land and housing values in Asuncion make residence there increasingly prohibitive for all but the middle and upper income sectors of the population. The clear trend is for the poor to move to the peripheral areas of Greater Asuncion in a process of working-class suburbanization began in many Latin American cities over a decade ago. It is the municipalities of Fernando de la Mora and Lambare, San Lorenzo and Luque bordering Asuncion which are experiencing the greatest growth, in relative terms, of any urban area in Paraguay (See Table 111-3). And most of the growth occurring in this urban belt around Asuncion appears to be made up of poor families being pushed out of Asuncion proper or coming from the poor departments of the interior. In 1962-72 Asuncion grew at 3.1% a year while in the same period Greater Asuncion grew at 4.1%. Since this time the periphery has continued to grow at a considerably higher rate than has Asuncion proper.^{1/} Indicative of the poverty of the immigrants relative to the natives of Asuncion are data of 1972 which show 21% of the Asuncion receiving more than 21,000 (\$167) guarani monthly income while only 12% of the migrants earned this much; at the other end of the scale, 28% of the migrants received less than 7,000 gs. (\$56) a month vs. 16% of the natives.^{2/}

1/ Interview with David Vera, Director, Census Division of Direccion General de Estadistica y Censos, Asuncion, November 16, 1979.

2/ Rivarola et al, Op. Cit., p. 176.

TABLE III-5
MONTHLY HOUSEHOLD INCOME DISTRIBUTION FOR PARAGUAY
ESTIMATES FOR JANUARY 1980 BY PERCENTILE

Percentile	A R E A / G R O U P			
	I.a & b Income	IIa Income	IIb Income	III Income
10th.	\$112	\$ 82	\$ 60	\$ 17
20th.	165	130	90	35
30th.	210	170	115	52
40th.	257	205	142	72
50th.	325	255	175	95
60th.	400	322	215	120
70th.	500	415	285	160
80th.	675	580	400	225
90th.	-	-	700	350

Source: Team estimates based on the various income studies listed in the bibliography

Estimates Based On:
\$1.00 = G135 (avg. free mkt. rate)

- I.a & b = Greater Asunción
 - II.a = Regional Urban Centers
 - II.b = Other Urban Places (over 2000)
 - III = Rural Villages and Farms (under 2000)
-

TABLE III-6
 MONTHLY FAMILY INCOME DISTRIBUTION FOR PARAGUAY
 ESTIMATES FOR JANUARY 1980 BY INCOME LEVEL

	I N C O M E		A R E A / G R O U P							
	Annual per Capita \$/Year	Monthly Family \$/Mon.	I.a&b %	I.a&b %	II.a %	II.a %	II.b %	II.b %	III %	III %
			Incr.	Cum.	Inc.	Cum.	Inc.	Cum.	Inc.	Cum.
The Poor	240	100	12.5	12.5	13.5	13.5	23.0	23.0	52.0	52.0
Poverty Line	*480	200	15.5	28.0	25.0	38.5	33.5	56.5	25.0	77.0
Lower Middle	720	300	19.0	47.0	19.0	57.5	15.0	71.5	9.5	86.5
Avg. Income Line	960	400	13.0	60.0	11.5	69.0	8.5	80.0	6.5	93.0
Upper Middle	1200	500	10.0	70.0	7.0	76.0	4.5	84.5	4.0	97.0
Upper Income Line	1440	600	7.5	77.5	5.0	81.0	2.5	87.0	2.0	99.0
Upper Income		Over 600	22.5	100.0	19.0	100.0	13.0	100.0	1.0	100.0

Source: Team estimates based on various studies

*Actual poverty line estimate = \$473/year

IV. DIMENSIONS OF THE SHELTER AND SERVICES PROBLEMS

As is the circumstance with many developing nations, Paraguay is at the stage where the capacity of formal sector institutions and allocated resources are not yet capable of fulfilling the shelter requirements of the majority of the population. With increasing urbanization is coming the realization that the traditional self development process must be linked to and supported by service and infrastructure networks largely unsusceptible to self-help inputs. This has its greatest impact on the urban poor.

The past decade has seen the sector receive increasing attention from the GOP, sector institutions has been expanded and institutional gap largely filled. As an institutional system it is still essentially embryonic, and requires improved coordination, synchronization and a policy-planning structure.

Quality differences remain pronounced between urban and rural areas. Fully 80% of rural homes have dirt floors, 85% of urban homes have either cement or clay tile floors. Urban infrastructure is deficient: 11% of urban units had piped water and only 4% were connected to a sewer, according to the 1972 census.

A. Housing Conditions and Stock

The only statistical basis for examining objectively the shelter situation are the census of population and housing done in 1950, 1962 and the last in 1972. This data has been quite thoroughly analyzed in several studies^{1/} of the housing situation in Paraguay since that time and need not be further analyzed here. However Paraguay has undergone substantial economic, population and institutional development since 1972 that has certainly altered the shelter situation. In addition, there are certain definitional shortcomings such as, what is considered urban and what is considered rural, in the census data that tend to muddy the perception of the shelter situation. Therefore the census data and conclusions must be used with care in assessing the present housing supply and conditions. Briefly some of the principal conclusions are:

1. The total stock in 1972 was indicated at 428,111 household units broken down into 17.6% in Asuncion, 22.7% in other urban areas and 59.7% in rural areas (See Table VI-I). This breakdown is misleading in a practical sense in that the other urban areas consist of the population in 162 towns (Municipios) of which 147 had populations under 5,000 and that approximately 67% of the population lived in rural areas and towns with less than 2,000 people in 1972. In short almost 2/3 of the housing units in Paraguay are essentially rural.

2. The predominant housing type is the detached unit on an individual lot. Basically only in Asuncion and Ciudad Presidente Stroessner are apartments now being developed, mostly for upper income levels.

3. Generally the methods of construction are heavily labor intensive and in the case of most rural houses, built by the occupants in an informal manner.

^{1/} La Vivienda en el Paraguay - Situacion y Perspectivas, Perla Baade, Centro Paraguayo de Estudios Sociologicos - SIAP Dec., 1976.
Analisis de la Situacion de la Vivienda en el Paraguay (Informe Preliminar), Consultores Paraguayos - COPEC for BNAPV - BIAPE, Aug. 1979.
Deficit de Viviendas Urbanas en el Paraguay, study made by SAEP Consultores of Asuncion for the BNAPV, Nov. 1979.

The materials are of local origin and vary from region to region depending on what is most readily available. Very few, if any, industrially produced materials are used for housing except some brick and cement. Table IV-2 gives a detailed breakdown on the predominant materials for walls, roofs and floors in the Asuncion, other urban and rural contexts. These materials remain predominant today for home construction.

4. There are significant differences in the quality of the housing stock between the urban and rural areas. Fully 80% of rural houses had dirt floors and 72% had straw thatch roofs according to the 1972 census where as the predominant materials indicated for urban Asuncion houses were 87% brick walls, 81% clay tile roofs, and 85% with either cement or clay tile floors. There is also

TABLE IV-1

Distribución de Población · Viviendas y Cuartos por Areas Censo 1.972						
Areas	Población		Viviendas		Cuartos	
	Cantidad - %	Cantidad - %	Es/Viv.	Cantidad - %	Cuar /Vir.	Ab/Cuart.
República	2.357.955 (100)	428.111 (100)	5.5	957.335 (100)	2.2	2.4
*Capital	338.958 (16.5)	75.371 (17.6)	5.1	237.888 (24.8)	3.1	1.6
Resto Urbano	493.367 (20.9)	96.756 (22.7)	5.0	261.913 (27.5)	2.7	1.8
Rural	1.475.610 (62.6)	255.984 (59.7)	5.7	457.534 (47.7)	1.7	3.2

* Se consideran los datos correspondientes a la ciudad contenida en su límite municipal, a los efectos comparativos de los datos censales, pero realmente la capital ha desbordado su crecimiento más allá de ellos, confundándose con los núcleos urbanos periféricos.

Table IV-2

Total de viviendas por áreas geográficas, según material utilizado en Pared, Techo y Piso

(En números absolutos y porcentajes)

MATERIALES	Paraguay Total		Asunción		Resto Urbano		Area Rural		
	Núm.	%	Núm.	%	Núm.	%	Núm.	%	
PARED	Ladrillo	171.273	40.0	65.566	87.0	56.123	58.0	49.584	19.4
	Adobo y Estaq.	164.367	38.4	4.407	5.8	18.681	19.3	141.279	55.2
	Madera	88.208	20.6	5.151	6.9	20.985	21.7	62.152	24.3
	Otros	4.103	1.0	247	0.3	967	1.0	2.969	1.2
	Total	428.111	100.0	75.371	100.0	96.756	100.0	255.984	100.0
TECHO	Tejo	156.223	36.5	61.012	80.9	56.619	58.5	38.592	15.1
	Paja	218.823	51.5	5.018	6.7	30.735	31.7	183.070	71.5
	Madera	27.839	6.5	304	0.4	2.490	2.6	25.045	9.8
	Otros	25.226	5.9	9.037	12.0	6.912	7.1	9.277	3.6
	Total	428.111	100.0	75.371	100.0	96.756	100.0	255.984	100.0
PISO	Baldosa y Cement.	60.711	14.2	41.224	56.7	15.314	15.8	4.173	1.7
	Ladrillo	101.478	23.7	21.442	28.4	43.347	44.8	36.693	14.3
	Madera	12.795	3.0	229	0.3	2.770	2.6	9.996	3.9
	Tierra	253.127	59.1	12.476	16.6	35.529	36.7	205.122	80.1
	Total	428.111	100.0	75.371	100.0	96.756	100.0	255.984	100.0

a significant difference in size of housing units in that 52% of rural units were of one room whereas only 25% of the Asuncion area units were of one room. Therefore in both size and quality (durability and sanitary) the rural/urban differences are evidently a condition that despite progress in the last eight years, is true today.

B. Housing Needs and Production

Attempts to measure housing needs or housing deficits invariably confront the issues of standards, quality, size which tend to be resolved quite subjectively. Given the predominance of rural housing in Paraguay, viewed from the urban perspective, the temptation is to over-dramatize the housing deficit especially in terms of required units. In the first place, the present (versus the 1972) housing stock is hard to estimate, especially for rural areas. Building statistics, permits, etc. were kept but have not been compiled or analyzed. Nevertheless, rural housing for the most part is built by the occupying families through informal self-help and usually not subject to control. Assuming no net decrease in the number of persons per household of 5.5 in 1972, applied to the present population estimate of roughly 3,000,000 in January 1980, the present housing stock would be approximately 560,000 units of all kinds. This means that an average of 14,000 units per year were added to the housing stock since 1972. Bear in mind that this figure is not a compilation of production statistics for the period but an estimate based on a no overall improvement assumption. There are several important circumstances that have occurred since 1972 that make it almost impossible to predict either need or production on the basis of historical trends. In terms of need, the principal circumstances are:

- The decreasing rate of growth of Asuncion proper due to diminishing area for growth within the city limits.
- The increasing rate of growth of the urban areas around Asuncion due to immigration from the central region towns and substantial spill over from Asuncion.
- The rapid growth of Ciudad Presidente Stroessner and surrounding areas due to the Itaipu dam power project.
- The increasing rate of growth of certain secondary urban poles especially in the eastern region of Paraguay.
- The colonization efforts in rural areas.

In terms of increased production the principal circumstances that have occurred are:

- The development of the National Savings and Loan Bank and the Saving and Loan Societies.
- The extensive housing construction undertaken by Itaipu Binacional in Ciudad Presidente Stroessner (at least 5,100 units) and by Yacyreta Binacional in Encarnacion.

Population, Housing Stock and Required Production by Area and Income Group - Estimates for 1980

Monthly family income range	I N C O M E G R O U P S				Totals
	The Poor 0 to \$200	Lower Middle \$200 to 400	Upper Middle \$400 to 600	Upper \$600 & Up	
I GREATER ASUNCION					
Population Estimate	28 %	32 %	17 %	23 %	100 %
Population in group	177000	202500	107500	145500	632500
Growth (3.35%)	5900	6800	3600	4900	21200
New household formation (4.6 avg.)	1300	1500	800	1000	4600
Housing Stock					
Housing stock	32900	40500	21300	31400	126000
Housing deficit (7.9%)	5300	3100	1600	-	10000
No. deficient units (28%)	20000	10000	5000	-	35000
Required Annual Production (1980)					
For new households	1300	1500	800	1000	4600
For replacement (1.1% avg.)	600	600	200	-	1400
To reduce deficit over 10 years	500	300	200	-	1000
Total Area I Requirement	2400	2400	1200	1000	7000
II INTERIOR URBAN AREAS (Over 2000)					
Population Estimate	47 %	28 %	9 %	16 %	100 %
Population in group	144200	83900	28900	48800	305800
Growth (4.5%)	6000	4000	1400	2400	13800
New household formation (4.6 avg.)	1400	800	300	500	3000
Housing Stock					
Housing stock	26400	16100	6200	10300	59000
Housing deficit (9.7%)	3800	1500	400	-	5700
No. deficient units (56%)	19000	11000	2500	500	33000
Required Annual Production					
For new households	1400	800	300	500	3000
For replacement (2.4% avg.)	700	450	150	100	1400
To reduce deficit over 10 years	400	150	50	-	600
Total Area II Requirement	2500	1400	500	600	5000
III RURAL VILLAGES AND FARMS (Under 2000)					
Population Estimate	77 %	16 %	6 %	1 %	100 %
Population in group	1584400	329200	123500	20600	2059700
Growth (2.9%)	46500	9500	3500	500	60000
New household formation (4.8 avg.)	9600	2000	800	100	12500
Housing Stock					
Housing stock	285000	62600	23200	4200	375000
Housing deficit (10%)	30000	5000	2000	-	37000
No. deficient units (80%)	260000	30000	10000	-	300000
Required Annual Production					
For new households	9600	2000	800	100	12500
For replacement (2.5%)	7400	1200	200	-	8800
To reduce deficit over 10 years	3000	500	200	-	3700
Total Area III Requirements	20000	3700	1200	100	25000
TOTAL PARAGUAY					
Population Estimate	64 %	20 %	9 %	7 %	100 %
Population in group	1905600	615600	259900	214900	2996000
Growth (3.2%)	58400	20300	8500	7800	95000
New household formation (4.7 avg.)	12300	4300	1900	1600	20100
Housing Stock					
Housing stock	344300	119200	50700	45900	560000
Housing deficit (9.4%)	39100	9600	4000	-	52700
No. deficient units (65%)	299000	51000	17500	500	368000
Required Annual Production					
For new households	12300	4300	1900	1600	20100
For replacement (2.0%)	8700	2250	550	100	11600
To reduce deficit over 10 years	3900	950	450	-	5300
Total Requirements for Paraguay	24900	7500	2900	1700	37000

- Increased private non-institutional investment in both the Asuncion and Ciudad Presidente Stoessner areas.
- Production by IPVU and other institutional sources.
- The generally strong economic growth especially in the last three years which has certainly spurred additional construction of housing both in the formal and informal sectors.
- The recent rapid growth of the construction sector which reached an annual rate of 32% in 1977-1978 period.
- Lack of tangible, reliable information on informal residential construction volume or approaches.

To describe the shelter problem more accurately it is useful to establish a breakdown according to the different population groupings and settlement patterns and according to income levels of the families. Four population groupings, which to a large degree coincide with the differing nature of the shelter problems, as well as the quantification of the poorer families within these areas are presented in Table IV-3.

More important than the number of additional units needed each year, however, is the problem related to the quality or adequateness of the existing housing stock. Here the focus is not one of replacing the already substantial investment of time and personal resources that went into building this stock but one of the upgrading of the quality through repair, modification, expansion or improvement. This is a facet of the shelter problem that has been largely unattended by the Paraguayan formal sector. In terms of scale, then, home improvement and upgrading becomes the major problem that will require action from within the shelter sector, especially in the rural areas, if the housing conditions are to be improved. Table IV-3 also presents a rough estimate of the requirements for upgrading actions.

C. Urban Infrastructure

The principal urban infrastructure of water supply, waste disposal, electricity, streets and storm water drainage and public lighting make up as an important part of the housing sector as the shelter itself. According to the 1972 census the provision of these services was minimal in that only 11% of the units had piped water and only 4% were connected to a sewer. However, since that time substantial progress has been made in these areas that outdate the census figures. As would be expected, the rural areas have little access to these services and there are serious water, sanitation and waste disposal problems associated with the rural habitat. For purposes of water and sanitary services the Government of Paraguay has divided responsibility between the National Environmental Sanitation Service of the Ministry of Health (SENASA), and the Sanitary Works Corporation (CORPOSANA), a national public enterprise. SENASA has the responsibility for all towns below 4,000 population and the rural areas, where CORPOSANA has responsibility for urban areas of all municipalities above 4,000. Therefore water supply and sanitary waste disposal is attended to on a national level for the whole country. Likewise, electricity supply is also the responsibility of ANDE, a national public enterprise. The rest of the urban infrastructure and service responsibilities rests with the local municipal government at all levels.

1. Asuncion and Surrounding Municipalities

Approximately 60,000 homes are presently connected to the water system in Asuncion which covers about 65% of the total. Likewise about 59,000 units are connected to the sanitary sewer system. The systems themselves cover almost all areas of Asuncion proper. However, many homes are not connected because they have their own wells or septic tanks which were installed before the system was expanded. Public water consumption has increased 71% since 1974. In general, residential development precedes the installation of water and sewer services. Since there are no requirements to either inform or receive approval from COPOSANA for land subdivision or development most residential developments were initiated without plans for water or sewer installation. Only years later and as the system expands are these developments served. In Asuncion proper, which is practically fully developed this is no longer a problem, but it is in the surrounding, fast developing municipalities, especially for full residential projects providing both urbanized land and housing. Storm water drainage is also the responsibility of CORPOSANA and, in Asuncion, is a serious problem area. Only the center city area has a storm drainage system; in the rest of the city, storm water run-off is on the surface collecting in the streets and in the lower areas causing flooding each time it rains which is about 180 days a year. CORPOSANA has plans to extend the storm drainage system at a cost of \$20.7 million of which BID will finance \$11.6 million. However, this will not cover all of Asuncion, not to mention the fast growing peripheral urban areas. As in the case for water and sewer there are no storm drainage requirements for residential land development.

Street paving is the responsibility of the municipalities and most residential streets are paved with rock set in a sand bed. While this is an economical method requiring no import of asphalt or use of cement, when combined with the lack of a drainage system there is a continual wash out of sand into the major paved streets requiring constant street cleaning and sand removal. The surrounding municipalities also use the same paving method; however, they have not kept pace with development and many streets remain unpaved.

Of the surrounding municipalities only San Lorenzo had the first stage of water system installed in 1974 with only approximately 1,000 residential connections as of 1979 which accounts for roughly 35% of the units in its urban area. Only in November of 1979 were water systems put into operation in Luque, Fernando de la Mora, and a second stage of San Lorenzo. There is no data on the number of connections in these towns due to the recent completion of the systems. Lambare does not have a water distribution system. Sewer system construction for San Lorenzo was started in 1978 with completion scheduled for 1980. Start of construction in Fernando de la Mora was scheduled for 1979. For the most part, these areas have relied on wells for water and septic tanks or latrines for human waste disposal, a combination which presents a serious problem as densities increase. Sewerage from the system is not treated and flows directly into the Paraguay River. There are no present plans for sewerage treatment in the Asuncion area. The 1979-81 program for water supply and treatment amounts to \$20 million. In the fast urbanizing areas surrounding Asuncion the supply and distribution system for electricity appears to present no serious problem. However, the installation of short distribution systems for connecting new housing projects is sometimes delayed due to demands on ANDE.

2. Interior Secondary Cities

CORPOSANA has just completed in November 1979 construction of water systems in the principal interior cities of Encarnacion, Pedro Juan Caballero, San Juan Bautista, Pilar, Concepcion and Ciudad Presidente Stroessner. This combined with existing system in Alberdi and San Bernardino now bring public water to a total of 8 interior cities. Construction is scheduled to start in late 1979 or early 1980 on four water systems in Villa Hayes, Caacupe, Villarrica and Coronel Oviedo. Again no data on connections is available at this time. Sanitary sewer systems have recently been completed or will be in early 1980 in Ciudad Presidente Stroessner and Pedro Juan Caballero. Both of these systems have sewerage treatment provisions (oxidation ditch or lagoon). Construction of a sewer system has been initiated for Encarnacion.

The principal methods for water supply and waste disposal in areas of secondary cities not yet served or cities without served or cities without service are as mentioned before, shallow wells and latrines.

3. Small Towns and Rural Areas - under 4,000 pop.

In 1972 according to the census figures, services in the rural areas were very poor. 89% of the rural houses got their water from shallow wells or springs and the rest from rivers, streams or other sources. The principal problem is not lack of water but the quality and purity. In the extreme, only 1% of the wells are considered safe. Also 40% of the households had to bring water from sources off their property. Considering that at the same time 94% of the rural households had only a non-hygienic latrine or no means at all for waste disposal, the use of shallow wells without protection must be considered alarming.

However, and for the same reasons mentioned before, improvement in the rural services has occurred since the 1972 census was made. Through the efforts of SENASA, a sustained and growing program to improve rural sanitary conditions is being implemented. Actually under development are water systems in 76 municipalities under 4,000 population; of these approximately a third are in service, another third are under construction and the rest are in the planning stage.

Programs to improve latrines and waste disposal are also being implemented providing sanitary water seal latrines and/or regular improved latrines. It is difficult to quantify what effect this program has with respect to the magnitude of the problem. However, in addition to the water systems mentioned above SENASA in 1978 installed 1,062 new wells with pumps, 17 drilled deep wells, improved and provided pumps for 266 existing wells and protected 13 springs; also, they built 8,700 latrines, improved 281 latrines and 1098 water-borne disposal systems. The programs for 1979 and 1980 will probably be larger. The present program for small towns under 4,000 population (urban program) is for a total of over \$11 million with \$6 million funding from IBRD. This program, in addition to constructing the water systems previously mentioned, proposes 2,000 sanitary cores, 4,500 water seal latrines and 12,000 regular latrines.

Electricity, although not as important or critical, was another service lacking in the rural home of which only 1.2% had service in 1972. In the small towns the situation was somewhat better with up to 25% of units served. No data was found on what changes have occurred since census in terms of rural or small town electrification.

The studies done by Multinational Agribusiness Systems, Inc. for USAID/Paraguay and the project paper for the Market Town Development Project develops more completely both the urban infrastructure and services problem and the role of the municipalities in the provision of these services.

D. Community Services

As for housing and infrastructure, the condition of community services differs greatly between Asuncion, other major urban areas and the rural communities. Responsibilities for assuring basic community services rest generally with the municipal government. However, the Ministries of Health and Education have the major role with respect to their service.

In Asuncion the basic services are generally available. However, accessibility to, and the quality of, community services such as health facilities, schools, public markets, public transport, recreation and government services for the lower quartiles is limited. Although studies for Asuncion may exist, the team did not review any specific studies of urban community services problems. In interviews with the Director of Urban Development of the Municipality of Asuncion scarcity and condition of bus terminals and of public market or satellite market facilities were mentioned as the immediate problems. Considering that the scale and scope of the services sector for major urban areas is subject for study in itself much beyond the scope of this assessment, it is difficult to indicate in any detail the seriousness of community services problems for the lower income groups in Asuncion. However the team considers that in the light of the growth around Asuncion within the jurisdictions of smaller municipalities, the demands on services within Asuncion will provide services to people outside its jurisdiction as these areas grow but at the same time remain dependent on Asuncion as a service center.

For the interior regional centers and market towns more information is available. The Market Towns Development Project study done by Multinational Agribusiness Systems, Inc. (MASI) under AID contract outlines in detail the problems of community services in interior towns and cities. Also involved with the improvement of municipal services is the Instituto de Desarrollo Municipal (IDM) which provides technical and financial assistance for municipal development^{1/} to all municipalities except Asuncion.

Figures IV-1 through IV-3 give an idea of the different services available in interior towns and cities and indicate that the degree of development in terms of services is not only that they are available but whether or not they are readily accessible to the poor and how good are they. The MASI report indicates that in general the services are limited in both geographic coverage and in target group accessibility and that deficiencies in health delivery, water supply and rural area accessibility through road improvements appear to be the most serious problems for the target group families.

^{1/} An AID loan provided resources for a Municipal Development Project with IDM and a second loan is under consideration.

SECTION IV

Figure 1

CHARACTERISTICS OF MUNICIPALITIES

	Caacupé	Capiatá	Caraguatay	Eusebio Ayala	Itaúba	Santa Elena	Isla Pucú
Population	22,000	26,000	22,000	19,000	23,000	10,000	12,000
Population Urban Core	7,000	6,000	4,000	4,500	4,000	1,200	3,000
No. of Houses	1,100	1,000	500	700	600	200	413
1st Harvest	Sugar	Vegetables	Cattle	Rice	Cotton	Cotton	Cotton
2nd Harvest	Manioc	Oils	Cotton	Cotton	Lace	Rice	Tobacco
No. of Townships	15	18	16	21	16	7	7
High Schools	4	4	4	4	4	4	4
Primary Schools							
Urban	3	3	2	3	3	2	1
Rural	15/15	16/18	16/16	18/21	13/16	4/7	5/7
<u>Institutions</u>							
Agricultural Extension Serv.	X	0	X	X	0	X	X
Hoof & Mouth Erad. Serv.	X	0	X	X	0	X	0
Water Agency for Small Communities	X	X	X	X	X	0	0
Malaria Erad. Service	X	0	X	X	0	X	X
Peace Corps	X	X	X	X	X	0	0
IDM Projects	Bus Terminals	Municipal Bldg.	Central Markets	-----	Water Tanks	-----	Slaughterhouses

*According to local informants

Figure 2

Development Scale

	Caacupé	Caragustay	Capiatá	Eusebio Ayala	Itauguá	Santa Elena	Isla Pucú
Post Office	x	x	x	x	x	x	x
Telephone	x	x	x	x	x	x	x
Electricity	x	x	x	x	x	x	x
Markets	x	0	0	x	x	x	x
Health Centers	x	x	x	x	x	x	x
Hospital	x	x	x	x	x	x	0
Veterinarian	x	x	0	x	x	x	0
Credit Coop	x	x	0	x	0	x	0
Farm Supplies Store	x	Coop	0	x	0	x	0
Local Transport	x	x	0	x	x	x	0
Peace Corps	x	x	x	x	x	0	0
Gasoline	x	x	x	x	x	0	0
Street Paving	x	0	x	x	x	0	0
Bank	x	0	0	x	0	0	0
Lions Club	x	x	x	0	0	0	0
Potable Water	x	x	0	0	0	0	0
Swimming Pools	x	x	0	0	0	0	0
Bus Terminal	x	0	0	0	0	0	0

E. Summary Environmental Considerations

An in-depth study of the environmental impact of human settlement and shelter activities has, as far as the team could determine, not been made for Paraguay. Therefore only some brief observations of possible concerns can be made here. Of principal importance because of the major role they play within the ecosystem and on the economy of the country are Paraguay's still extensive forest and the surface and ground water and the river system. The relation of human settlements to these systems becomes apparent in the increased colonization activity which has led to increased deforestation. In the absence of an overall land use policy, the national forest service has had difficulty in keeping track of the process. Land is principally cleared for agricultural production and as a result valuable lumber resources are wasted as much is burned in the uncontrolled clearing process. Serious problems arise when land unsuitable for cultivation is indiscriminately cleared and leads to increased erosion, changes in soil permeability and possible adverse effects on rain fall and underground water. More directly effecting the rural and small town inhabitants is the pollution of both small streams and the shallow water table which is the source of consumption water. As settlements grow and densify the potential for contamination from latrines and other waste disposal practices increase sharply and becomes a major environmental health problem. Increased agro-industry activity also has the potential and in some cases has already contributed to the contamination of major streams. COPOSANA's project for the water supply system for Coronel Oviedo and Villarrica may already be affected by agro-industrial pollution of the supply stream. Environmental controls will be needed in this area. Experts also consider that Lake Ypacarai, a recreational area close to Asuncion is contaminated at least in the low water season when drainage is slowed.

In the urban context of Asuncion and the major interior cities the principal concern revolves around waste disposal/water supply. The major rivers of Paraguay are one of its major assets. They supply not only water for consumption or agriculture/industrial purposes but are also the prime source for energy, a principal means of transportation and a recreational benefit. The rivers are Paraguay's beaches. To risk the pollution of the river system would be tragic. Until recently, water supply/waste disposal was basically handled on-site. With higher urban densities and the growth of additional urban areas these means are no longer acceptable. However, the alternative of piped water and water-borne sewerage disposal places a new burden on the river system.

Asuncion, presently the only city with an extensive water and sewer system, both takes its water from the Paraguay River and disposes untreated effluent into the River. There are other growing urban areas along the river, such as Concepcion and Pilar, both up stream and down that use river water. As these have begun to develop extensive sewer systems and if treatment facilities or methods are not required or contemplated, the river and the overall environmental quality will surely be degraded. Also, along the Parana River, Salto del Guaira, Ciudad Presidente Stroessner and Encarnacion are three rapidly urbanizing areas in the process of developing water/sewer systems. Fortunately, they will be required to develop sewerage treatment facilities as conditioned by the large hydroelectric projects being developed on the Parana, otherwise the contamination

potential as growth continues would be greatly increased. Perhaps investments in environmental protection measures have not been considered priority actions in the past, but Paraguay is fast approaching the time when these considerations will become not only priority but imperative. As for Greater Asuncion, the country's only large urbanized area, planning for sewerage treatment facilities should be initiated and priorities established without undue delay.

F. Health and Sanitary Conditions

As indicated by the increasing life expectancy of the Paraguayan population, which rose from 51 in 1950 to 62 by 1975, health conditions have been improving in Paraguay. The country's people appear particularly favored by the high quality of nutrition in their food. They are less fortunate in the low level of public services they receive, both in the health and sanitation sectors.

Few indices of health are more revealing than those which relate to children, as the very young population are more vulnerable to environmental conditions than the population as a whole. The latest statistics on infant mortality for Paraguay reflect an improvement over time but continues to rank well above the average for Latin America. The number of deaths per thousand live births among infants under one was reduced from 90.7 in 1960 to 84.0 in 1972; the comparable average figures for the Latin American region were 71.9 and 52.5. Conversely, mortality among children aged one through four, at 3.2 deaths per thousand in 1972, was better than the comparable statistic for 18 countries of the region, 6.3. While cross-country comparisons are difficult in health data, due to the many variables involved, it could be possible that two divergent forces affect these differing data.

Nutritional levels which are a major cause of death among children in poor countries, are high in Paraguay relative to the rest of Latin America. The per capita calorie and protein intakes in 1972-74 (at 2535 and 74.5) average 7.1 and 16.1% above that for the region as a whole; similarly, the supply of calories as a percent of the average requirement (119.5) was also well over (15.3%) the regional average.^{1/} Given the agricultural nature of Paraguayan society and the abundance of meat in the national diet, such positive figures are not surprising; they may well help to explain the relatively favorable child mortality rates quoted above.

The high rate of infant mortality in Paraguay may be explained by another conjunction of data relating to health and sanitation services. Professional health personnel are in very short supply in Paraguay. In 1974 there were 4.58 physicians per ten thousand persons. In rural areas,^{2/} there were only 1.2 doctors per 10,000 persons, while in Asuncion there were 21.^{2/} In 1976 the number of auxiliary medical staff (2321) was lower in Paraguay than in any Latin American or Caribbean^{3/} country, with the exception of Barbados, which had only 9% of Paraguay's population.^{3/} Probably more significant than the number of health personnel is the quality of infrastructure which has a direct effect on health, water and sewerage systems. A smaller percentage of Paraguay's urban population was served by piped water and sewerage systems than for any other country in Latin America. Just over a third (36%) of Paraguay's urban dwellers had access to piped water

^{1/} Statistical Yearbook, UN, Op. Cit., P. 31-35.

^{2/} Plan Nacional, Op. Cit., p. 192.

^{3/} Statistical Yearbook, Op.Cit. p. 447.

in 1973; only 15% of city dwellers were served by a sewerage system in 1977. In rural areas 6.0% of Paraguay's population had access to piped water versus over five times this proportion (32.6%) for the region as a whole.^{1/} The principal (31.8%) cause of death in the Paraguayan population in 1973 was infectious diseases and parasites, which were the overwhelming (69.6%) reason for visits to doctors' offices.^{2/} Though data is lacking for direct causality between the low level of services, medical personnel and particularly water and sewerage systems, on the one hand and such indicators of poor health conditions as infant mortality on the other, there is a clear relationship between the two phenomena.

^{1/} Ibid., p. 61, 62

^{2/} Plan Nacional, Op. Cit., p. 186.

V. THE SHELTER DELIVERY SYSTEM

A. Shelter Sector Finance Institutions

Paraguay currently faces serious and growing shelter and urban services problems. While the decade of the 70's saw the establishment and/or expansion of a network of public autonomous and private institutional systems to serve the sector, the task confronting them is enormous and growing.

BNAP and the Savings and Loan System represent a powerful home/finance mechanism. The problem still remains of expanding downward the range of income groups served by the system and thus providing the growing number of lower income families with effective access to the premier home finance apparatus in the country. IPVU is the public sector institution charged with production of shelter for low-income families. To date production has been scant and there has been no effort to synchronize the formidable financing capacity of the Savings and Loan System with the supply responsibilities of IPVU.

1. The National Savings and Loan System

The Paraguayan savings and loan system was established by Law 325 of December 10, 1971. This law created the National Savings and Home Loan Bank (BNAPV) and the savings and home loan societies. The BNAP is an autonomous agency of the government whose main objectives are to authorize and charter, support and supervise the operations of the savings and home loan societies. The main objectives of the S&L's are to attract savings from the public and lend them to their members or depositors principally through mortgage loans for the construction, acquisition, improvement and expansion of houses. The societies may be established as stock companies or mutual associations.

The first two societies, Progreso and Hogar Propio were chartered by BNAP in 1972 and commenced operations in 1973. From this beginning, the system has grown to 7 savings and loan societies, with a total of 12 outlets in the capital city and 9 others in various interior cities.

The system by any measure must be judged as having been eminently successful in the attraction of savings. The table below demonstrates the extent to which actual savings have far outstripped even the most optimistic projections.

On the home financing side of the ledger, Table V-1A demonstrates the rapid growth in the volume of home financing attributable to the system and testifies to its ability to place home financing as well as capture savings.

The average home value financed shows that quite clearly the system has been addressing middle and upper-middle income client needs, despite BNAP efforts to expand downward and begin to cover more modest urban income families.

However, the potential, and reality of the system's impact on housing finance can be seen when one realizes that of the estimated 4,800 units built in urban areas in 1979, the system financed approximately 60%.

Table V-1 ^{1/}
 Comparison between Savings Projected
 and captured by the S&L System
 Years 1973-1978 (000's of \$)

Year	S A V I N G S				% C/P	
	Projected		Captured		Annual	Accum.
	Annual	Accum.	Annual	Accum.		
1973	535.7	535.7	2,423.1	2,423.1	452.3	452.3
1974	892.9	1,428.6	6,179.3	8,602.4	692.1	602.2
1975	1,000.0	2,428.6	11,480.0	20,082.4	1,148.0	826.9
1976	1,261.9	3,690.5	16,188.9	36,271.3	1,282.9	982.8
1977	1,547.6	5,238.1	22,569.1	58,840.4	1,458.3	1,123.3
1978	628.6	5,866.7	39,067.6	97,908.0	6,215.0	1,668.9

Source: BNAP's 1978 Memoria

^{1/} "Evaluation of the Paraguayan System, BNAP and Savings & Loans Associations", Dec., 1973, by William J. McKeever.

BNAP, lacking the requisite administrative authority, and due to the strong liquidity posture of the individual savings and loan societies and their own very limited capital base, also lacking the leverage which some dependence on the part of the S&L's might bring, has not been able to guide the System to the extent originally envisioned. While strong, independent individual savings and loan societies are clearly to be applauded, modifications should be sought which would enable BNAP with its national perspective to facilitate the expansion of the systems client group, the percentage of the market served and expand the range and type of solution routinely financed.

2. The Paraguayan Institute for Housing and Urban Affairs (IPVU)

By Law No. 970 of 1964, the GOP established IPVU, whose main purpose,

Table V-1A

PARAGUAY S&L SYSTEMData on Home Finance Activity

	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>Sept. 1979</u>	<u>Total</u>
Loans	315	692	920	1,134	1,248	2,392	2,204	8,905
Amount (\$) ^{1/}	2,344,000	6,753,000	10,584,000	14,898,000	20,174,000	45,424,000	38,883,000	139,000,000
Average Loan (\$)	7,440.00	9,760.00	13,680.00	13,140.00	16,165.00	19,000.00	17,642.00	15,600.00
Average House Value (\$) ^{2/}	9,300.00	12,200.00	17,100.00	16,400.00	20,200.00	23,750.00	22,050.00	19,500.00

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^{1/} 1\$ = ¢126.

^{2/} Considering the legal loan to house value ratio of 20/80.

according to Section 4 of the law, was to "facilitate to the families^{1/} the satisfaction of their housing needs be it directly or through other state, community or private institutions, as well as to plan, orient and promote the development of cities and urban centers."

The GOP, however, has not provided IPVU with the resources it needs to carry out the ambitious task which the law assigned to it, nor with the tools to mobilize those resources from within Paraguay.^{2/}

IPVU, in the 15 years of its existence (as of June 30, 1979) has financed a total of 5,654 housing units, or an average of 377 units per year. In the face of recent growth of below median income urban population such a level of production is obviously inadequate. Furthermore, operations have frequently resulted in decapitalization of the institution through the employment of what were, in effect, negative rates of interest. Operations have also depended to a large extent on external resources, and have frequently addressed target groups clearly in the middle and upper-middle income brackets.

In short, IPVU is not meeting the mandate it received at the institution's inception. Administrative and technical capability to identify, design and arrange the construction of large numbers of shelter units for low income families must be greatly strengthened. Planning and programming capacity is also currently weak and also requires attention and additional resources. In the context of the overall rationalization and specialization evolving within the shelter sector institutions, the role of IPVU should perhaps now be more narrowly focused on production, with financing and servicing responsibilities increasingly transferred and/or arranged with the housing finance institutions.

3. National Workers Bank (BNT)

BNT was established by Law No. 423 dated November 23, 1973, with an authorized capital of ø600 million (\$4,760,000), 90% of which (ø540 million) is represented by its salaried workers members' stock and 10% or ø60 million was the GOP contribution. By December 31, 1978, ø527,557,736.27 (\$4,187,000) of the authorized capital had been paid in including the ø60 million GOP share. It will receive one half of one percent of the total contribution paid by both employers and workers of officially authorized unions to the Social Security Fund. During 1979 a bill was sent to the Paraguayan Congress to increase the authorized capital to ø2 billion (\$15,873,016.) If this capital increase is approved BNT's capital will be 400% larger than BNAP's authorized capital of ø500 million.

BNT's principal objectives are:

a. to provide credit and establish savings and loan mechanisms to improve the wellbeing of workers individually and through unions, cooperatives and other related associations;

^{1/} According to Section 33 of the Law, the target families are those with "scarce economic resources and larger numbers of members."

^{2/} Although Section 6 of its organic Law provides IPVU with an authorized capital of ø1 billion, the integration thereof was left to the goodwill of the GOP and the municipalities, and the institution has not been capitalized to this level.

b. through incentives to promote systematic savings among workers and stimulate these to rationally spend their income;

c. by providing technical and financial assistance thereof to stimulate the organization of cooperatives and other institutions with social and economic potential and strengthen those already existing.

To date, only very modest investments have been made on housing.

In fulfillment of its functions, BNT has financed the construction of two low-income housing projects for members affiliated to officially recognized and registered unions. These projects, consisting of 40 units each, have been carried out through self-help and mutual-help techniques. BNT financed the construction of the houses and/or the purchase of building materials, at terms of up to 48 months, interest rate of 12% per annum, and a maximum loan of ¢160,000 (\$1,270).

Realizing that the share BNT provides for housing from the total amount loaned each year by the Bank is very small^{1/}, BNT's management is looking for ways of expanding the Bank's housing related activities and in this sense has initiated studies of various alternatives, as follows:

a. Establishment of a savings and loan system for housing, through a programmed savings system eventually supported with external resources in the form of seed capital. This program could work either as an expansion of BNT's now incipient savings and loan program or through the integration thereof with the Paraguayan Savings and Loan System.^{2/}

b. Creation of a special housing fund to finance low income housing, through workers' unions or other similar associations which will themselves make the selection of qualifying beneficiaries.

Funding for this program is expected to come either from budget appropriations or from new taxes to be applied especially to this program.

c. BNT commissioned a study by the National Office for Social Development on the socio-economic feasibility of a program for the construction and expansion of houses for the working class of Paraguay. In the course of this study, the Office of Social Development conducted surveys in various locations of the interior as well as in the area composing Greater Asuncion.

It is not currently anticipated that housing finance will be a major component in the portfolio of this institution. At current levels of available funding, the BNT is not, and is not envisioned, as becoming a major factor in housing finance. However, having already established the linkage of a financial institution to a constant, predictable source of capital such as the Social Security system, the GOP might well consider if they have not already created the means of directing significant sums of capital to the ongoing financing of low income housing.

^{1/} According to the 1978 Memoria said amount was ¢178 million or 6.2% of ¢2.861 billion in loans made by BNT during said year.

^{2/} In this respect, the SSA team sees BNT as an important source of domestic funds especially in regards to IPVU's programs. See recommendation No. 2

4. Other Institutions Involved in Housing Finance Activities

In Paraguay, as in most Latin American countries, there are a series of institutions both in the public and private sectors, which one way or the other are involved in the housing finance field, if not as their main line of business at least as a complement to other programs or activities. In this regard, in Paraguay the Social Retirement Plans in the public sector and the commercial banks and credit unions, in the private sector (the latter only recently), carry out some housing finance activities, as follows:

a. The Social Security institutions are the so-called Cajas de Pensiones y Jubilaciones and the Instituto Paraguayo de Prevision Social (IPS). These institutions are authorized to collect and manage the social security taxes, the accumulation of which provides the funds for financing the different pension and retirement plans. The principal Cajas serving specific sectors of the labor force, especially white collar workers are the Banking Employee's Institute and the Armed Forces' Personnel Institute, along with the IPS which serves the blue collar workers.

Among the benefits these institutes provide to their affiliates are consumer loans for social purposes. The borrowers, however, are not required to disclose the destinations of these loans, but in some cases though, borrowers invest the loans in some sort of housing related purpose such as the down payment for a house or the expansion or improvement thereof. Some of these institutions, however, have systematic specifically housing-oriented loan programs among their activities such being the case of the Armed Forces Personnel Institute. Unfortunately, however, the team was unable to obtain information regarding the annual number of houses financed by these institutes and amounts involved therein. This difficulty in the case of non-specific destiny credits is due to the fact that no record is kept as to the purpose of these loans and in the specifically housing-related loans because the Armed Forces Personnel Institute does not provide any kind of information to outsiders.^{1/}

b. In the case of commercial banks, the situation is somewhat similar to that of the Social Security Institutions in that they keep no records on the destination of the loans they make to their customers. However, as bank loans are on short terms (maximum 18 months) of interest rates ranging from 24% to 30%, it is doubtful any significant number are housing related.

c. In regard to credit unions, only as of very recently, have they gotten involved in housing finance activities. In fact, since the initiation of the FCH-OPG program in Paraguay under the auspices of AID's Office of Housing, a coordination has been achieved between BNAP and the Paraguayan Federation of Credit Unions (CREDICOOP) whereby access to the funds provided under the HIG-001 program for cooperatives (\$750,000.00) has been facilitated to the Federation's member cooperatives.

Under this program, which was initiated in January, 1979, BNAP is financing the construction of housing projects to members of 11 credit unions in different locations of the interior of Paraguay.

^{1/} Even BNAP's staff was unable to obtain this information for the team members.

B. Components of Housing Production

1. Urban Land

Land in Paraguay is classified under three areas of control; national land, municipal land and private land. Land availability, except in the Greater Asuncion area, does not present a problem to development. The cost of land, inflation and speculation in the greater Asuncion area and in some of the faster-growing regional urban centers is however becoming a deterrent to the development of residential solutions for the poorer families.

Generally private land for residential growth is purchased, subdivided and sold off in lots by private real estate companies. No infrastructure plans or development is required. The municipal government must approve subdivision plans and usually indicates street layout requirements. The requirements are minimal, limiting minimum lot size, (360m) frontage, (12m) and the percentage that must be dedicated for public usage which is dedicated to the municipality immediately upon approval. The subdivider has only to cut to rough grade the streets, stake out the lots and offer them for sale. Most urban land in the Greater Asuncion area is subdivided and sold on 10-year terms, with purchase-sale contracts that pass title only when 50% of the price is paid.

With the advent of the savings and loan system, the development of more complete urbanizations have appeared in that the streets are paved, water lines and electricity is installed, and in a few cases, sewer lines are installed. This degree of urbanization for residential development is quite costly and is usually done only in upper, and upper middle income projects. In Greater Asuncion, the present estimated cost for a minimum size lot of 360 square meters in an undeveloped land subdivision is around \$2500 to \$2800. The same size lot with paved streets, water lines and electricity would cost approximately \$7,000 to \$7,500 (See Table V-1).

Municipal land is usually subdivided into blocks and lots by the municipality and rented on a yearly basis for a token rent. The municipalities will not sell land until they are sure the families are going to establish their home there and only after the house is started, or at least after one or two years of renting, will they consider selling. Most municipalities prefer not to sell the land because once lots are sold and titled they go on the tax rolls and the taxes are then paid to the central government, not to the municipality (which actually has to collect the tax). Only 4.4% of the land tax revenue returns to the municipality. Therefore, to sell means a loss of rental income to the municipality. When land is sold to private families it is usually done at a price well below the market value and collected over a period of years. Although this practice of not selling land discourages speculation it also limits the development of better housing. The cost of municipal land varies widely from town to town. In the Greater Asuncion area where most land was privately held prior to the establishment of the present municipal law very little municipal land is now available. Private subdivisions pass well beyond the urban boundaries of the municipalities, which are actually district governments. In the Asuncion area, subdivisions are now being developed as far as 20 kilometers from downtown, well beyond urban services. Land speculators and the subdividers themselves are now holding lots off the market due to the rapid rise in land prices. Also, many speculators purchase lots as a form of investment which at present has a higher potential yield than savings or other alternatives.

TABLE V-2

EMPRESAS INTERVIEWED:

- 1) FINCA
- 2) AURORA INMOBILIARIA
- 3) KOVSTIANOSKY
- 4) URBA LOTE

NOTE:

- 1) Aurora and Urba Lote said that little new land is being put on the market at the moment - prices have been rapidly increasing, and sellers are waiting.
- 2) Lots close in are being sold al contado only.
- 3) Certain No. (pg. 6) monthly payments must be prepaid.
- 4) "Promesa de Venta" sales contracts.

E X A M P L E S

LOCATION	LOT AREA B	No. PAYMENTS	MONTHLY PAYMENT (¢)	TOTAL PRICE (¢)	AL CONTADO A	SERVICES	$\frac{A}{B^2}$ (¢/m ²)
2 1/2 Km from Luque	360m ²	100	2,800 4,000	280,000 400,000	196,000 280,000	---	544 778
Luque - San Lorenzo	360m ²	120	5,000 10,000	600,000 1,200,000	420,000 840,000	Elect.	1,167 2,333
Limpio	360m ²	60	3,750	225,000	157,500	---	438
Capatá - 3Km from the highway	400m ²	120	3,950 5,000	474,000 600,000	---	---	---
Lambaré	400m ²	120	6,700 8,300	804,000 996,000	402,000 498,000	---	1,005 1,245
Itauguá	400m ²	120	3,000	360,000	180,000	---	450
1Km de Sn. Lorenzo (100m de la ruta) Sn. Lorenzo (Km. 9)	360m ²	105	7,000	735,000	300,000	---	833
Lambaré (Cl. Última)	360m ²	105	10,500	1,102,500	600,000	Agua y Luz	2,778
Luque (Segunda compañía)	360m ²	105	3,000	360,000	180,000	---	450
Nemby (Km 15) (300m de la ruta)	360m ²	105	5,000	525,000	---	---	---
Luque	360m ²	126	2,500 3,000	315,000 378,000	---	---	---
Afuera de Luque	Hectare	---	---	---	1,600,000 2,000,000	---	160 200
Fdo. de La Mora	Hectare	---	---	---	6,000,000	Agua y Luz	600
1Km de Luque	Hectare	---	---	---	2,000,000	---	200
Lambaré	Hectare	---	---	---	6,000,000	Agua y Luz	600
Villa Elisa	Hectare	---	---	---	2,000,000	---	200
Mariano (Puente Remanso)	Hectare	---	---	---	2,500,000	Agua y Luz	250

Annex 5 presents some actual estimates in 1979 prices for sites and services type projects in different cities in Paraguay. These costs do not include overhead or profit for the developer.

2. Infrastructure and Utilities

In Greater Asuncion and in the principal interior cities, development of the water, sewer and storm drainage systems is the responsibility of CORPOSANA.

Even though CORPOSANA has been attacking the problem with a substantial effort that should be recognized, they are a long way from catching up with the expansion of residential area development, both in the Greater Asuncion area and in the other regional urban centers. As a result land subdivisions have great difficulty receiving services from CORPOSANA. Housing project developers or land subdividers are not required to obtain approval from, or even inform, CORPOSANA as to the plans for a project. Only when projects need water service do they request the service from CORPOSANA, and then, there is no guarantee that service will be available to the site. The problem is worse in the case of subdivisions that have been sold off as lots in that each individual then has to deal directly with CORPOSANA. To wait for the installation of these services would take years, and in most cases families dig wells for water and install septic systems for waste disposal. At times CORPOSANA has had to reject urbanization works already installed because no standards were applied and the systems do not function properly.

It is interesting to note that water systems are usually installed only after the areas have been developed for several years when the actual cost for installation of the system and each connection can be charged to the lot or homeowner. Table V-2 indicates the present rates for connection to the system and for water services. For the extension of the sewer systems CORPOSANA employs a unique financing method. They prepare the plans and designs for an area to be served, determine costs and estimate charges. Then through public bidding select a construction contractor not only to build the system, but also to collect the established charges from each lot holder. CORPOSANA takes over only the operation and maintenance when the work is done. Therefore, each lot holder or homeowner is charged his proportionate share of the total cost and pays the charges directly to the construction contractor authorized by CORPOSANA. Sometimes terms for payment of the assessed charges are arranged, especially for lower income families. This is, in effect, a chartered private valorization system wherein the contractor provides the financing and recuperates the investment directly from the public served. The approach works but is obviously an indication of how the Paraguayans shift public services development to the private sector. The poorer families obviously find it the most difficult to pay for this method of providing service, which is why they probably are the least served, if at all.

Street paving for those developments where paving has not been installed is the responsibility of the municipalities. Here again the paving is usually far behind the advance of land development. Paving costs are also assessed to the land owners on a frontage basis and collected on time through direct municipal charges. Here again these normally public sector investments are really paid for by the private individual land owners, albeit with some subsidy in interest rate.

In general, there is a lack of land development norms and standards, and no zoning control or planning. Only recently has the municipality of Asuncion adopted any zoning criteria and except for the minor regulations dealing with lot size and public spaces has few requirements for urbanization or effective coordination with CORPOSANA with respect to new land development. The other ten municipalities

TABLE V-3

ESTRUCTURA VIGENTE DE LAS TARIFAS DE AGUA POTABLE - ASUNCION

Tipo de Medidor (en pulgadas)	Tarifa Básica mensual G.	Consumo Básico mensual m3	Precio Unitario por m3	Tarifas de consumo adicional por m3
Medidor de ¼"	200	10	20	20
Medidor de ½"	500	20	25	40
Medidor de ¾"	750	30	25	40
Medidor de 1"	1.875	75	25	40
Medidor de 1 ½"	3.750	150	25	40
Medidor de 2"	4.625	185	25	40
Medidor de 3"	8.325	333	25	40
Medidor de 4"	11.250	450	25	40
Medidor de 6"	22.500	900	25	40

COSTOS DE CONEXIONES DOMICILIARIAS POR TIPO DE MEDIDOR

Tipo de medidor (en pulgadas)	Costos de Conexiones G.
¼"	—
½"	12.000
¾"	12.000
1"	23.000
1 ½"	26.105
2"	57.700
3"	115.400
4"	141.372
6"	230.187

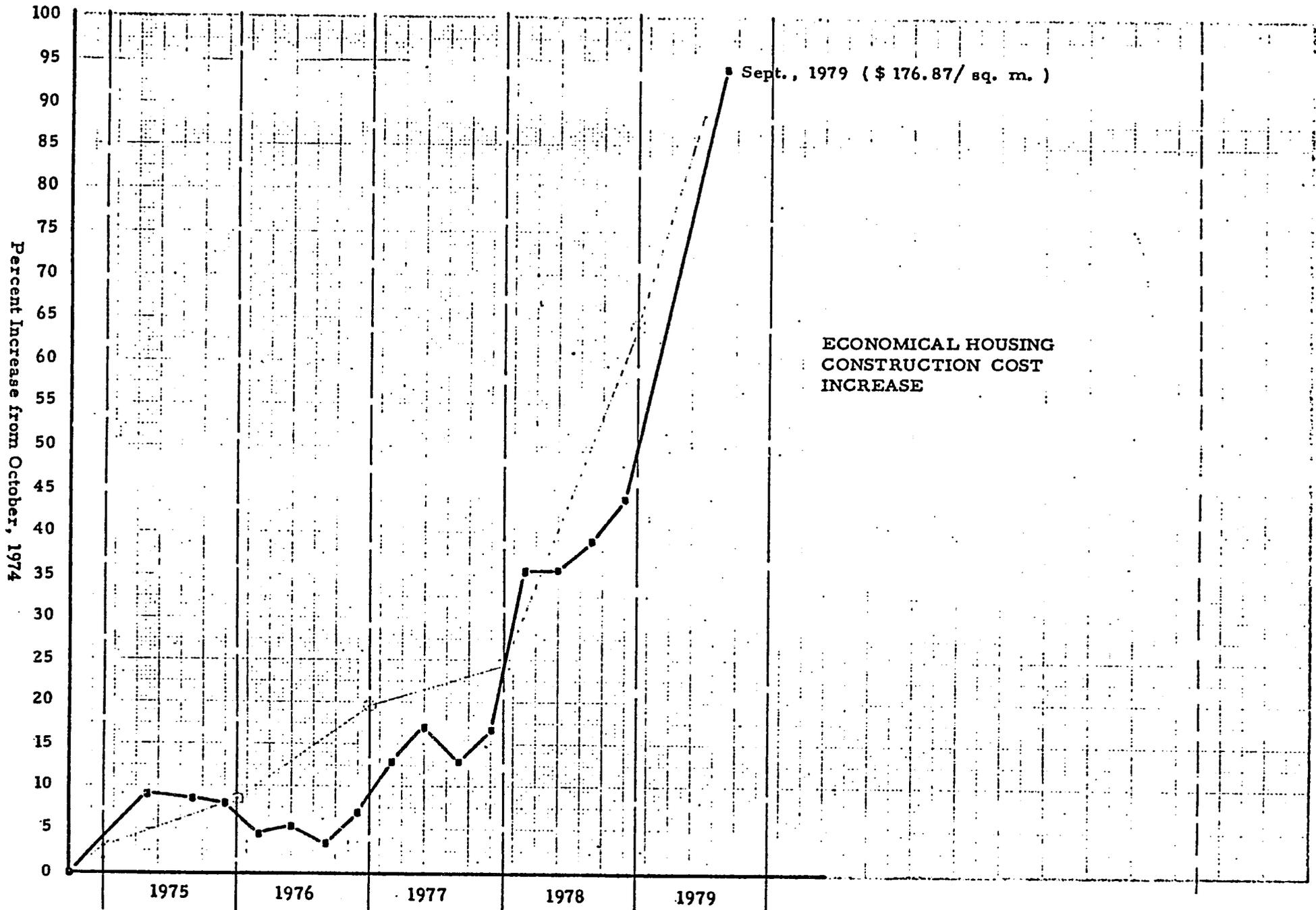
that make up the metropolitan area of Greater Asuncion generally have the same provisions as Asuncion but have done little if any urban planning nor do they have effective control over private land development or subdivision. Finding sites for integrated urbanization and housing development in the Greater Asuncion is a difficult task. Apart from the basic cost of the raw land, problems with size of tracts, access to roads and especially availability of services, etc., make locating suitable sites difficult.

Electricity and the electric distribution system is handled by ANDE and the system has not kept up with the urban development frontier. However, the problem is not as acute as for water or sewer services. Here again, there are no pre-development requirements for approval of or notification to ANDE for land subdivision or development and only when a project is ready for connection is ANDE notified. Connection fees must be paid in advance before ANDE will install the distribution system and also the cost of the construction is charged to the project or homeowner. If the site to be connected is not near an existing line there is usually a long delay before the interconnecting lines can be installed by ANDE. Problems in the interior cities are similar to those of Asuncion and may, as in the case of the smaller urban areas, be serviced by municipal electric systems operating only at night or with limited capacity. All of the major regional urban centers where project-type housing would be developed are served by ANDE.

In summary, residential development, integrating both land and housing in large or even medium size projects, is a relatively new approach in Paraguay. There is a virtual regulatory vacuum with regard to land development and the integration of services. There is little urban planning except for Asuncion proper. The installation of services is accomplished through the municipalities or public enterprises who charge the costs directly to the land owners served. By this approach the public sector investment has been kept low; nevertheless, the poorer groups of the urban areas remain largely unserved and cannot afford the assessments required.

3. House Construction

The construction industry has grown by more than 80% over the last three years. Obviously, the increased investment in housing has both contributed to and benefited from this growth. The industry has both the technical and volume capacity to undertake medium and large scale projects. However, most of the housing construction in the country as a whole is done outside the formal construction industry. Only in the Greater Asuncion area and in the regional urban centers does the formal construction industry play a larger role in housing. Most construction, including housing projects, is done by private construction firms. Very little, if any, direct public sector institutional construction is done. The capacity to build large projects is evidenced by the housing projects developed in connection with the construction of both Itaipu and Yacyreta dams. Basically, a new town complete with urbanization, schools, churches, stores and over 5,000 units was built by Paraguayan contractors in Ciudad Presidente Stroessner. A similar though less ambitious project is now under the way at Ayolas near the Yacreta project and also in Encarnacion where more than 500 families and other facilities must be relocated.



Small builders construct most of the houses in Paraguay. These builders work mainly under an informal contract directly with the owner who finances the work directly. With the development of the savings and loan system, housing project construction can now be financed and more projects are being developed; at first only for upper and middle income families, but now also for some below medium income buyers.

The low cost housing presently being developed consists of small but complete units built with brick wall, tile roofs and cement tile floors with bathrooms installed. The finishes are minimal but generally neat. The lots are 360 square meters, a legal minimum in Asuncion and most other urban areas, and have for the most part minimal urbanization standards. Projects like shell houses, piso-techo and sanitary cores have not been tried in Paraguay.

The principal problem at present has been the severe inflation in the construction cost for all types of work. Chart V-2 shows the building square meter cost index calculated by BNAP based on the basic price index prepared monthly by the Paraguayan Construction Industry Chamber. This index has gone up over 80% in the last two years. The basic square meter cost as of September 1979 was about \$177, for the minimum standard house being produced by the formal sector construction companies. Although no accurate data is available, the small builder, working only on direct wages within the informal sector, is probably building a small unit for about \$96 per square meter. Of course this price does not include overhead, interim financing, profit or other costs, but it does indicate why the informal approach is more feasible for a poor family, even when financing is not available.

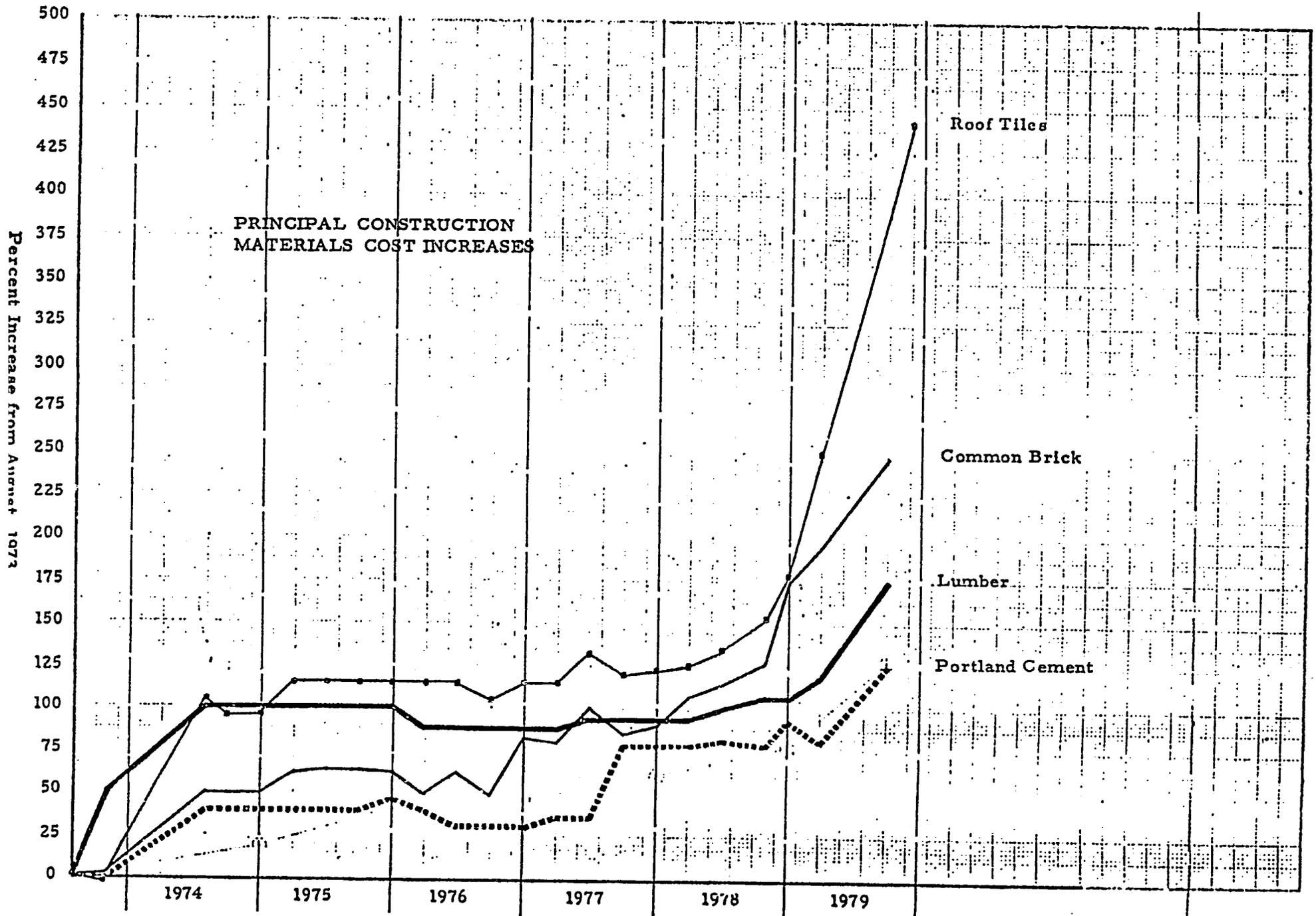
For the formal sector builder, sales prices of units are a good deal higher because he must include the overhead, profit and sometimes even the more onerous short-term financing cost. This is especially true when delays occur in the provision of services causing delay in the termination and sale of the units.

As mentioned before, some of the lower cost solutions developed elsewhere in Latin America have not been tried in Paraguay. This is probably due to the fact that the recent project development activity has been carried out strictly in the private sector. That developers have produced low-cost housing at all, is due mainly to the efforts of BNAP in encouraging this type of development. To get private builders to develop even lower cost solutions will be very difficult if not impossible, especially if inflation of land and construction costs continues at its present high rate.

Additional study and understanding of how the informal sector construction is actually done may lead to ways in which the activities of the small builders and the informal approaches can be utilized in a more systematic way to increase housing production. Finding a way to facilitate this type of activity through provision of credit would build on and improve a long-standing tradition of private individual effort in the housing sector.

4. Building Materials

The predominate materials used for residential construction in the larger urban areas of Paraguay are traditional and do not vary much from low income to upper income housing. Common brick, small clay tiles and clay roofing tiles are basic materials used for walls and roofs. Lumber, particularly a resistant species called "Lapacho," is used for roof structures, doors and window frames. Cement is used for mortar and plaster which is usually very low strength. Pre-cast cement products such as floor tiles, lintels or wash sinks are also common. The cement itself is the only industrially manufactured product and is made by a



nationally-owned cement plant. Bricks and tiles are made by rustic "cottage" brick plants found throughout Paraguay; although there are some more modern plants producing a facing type brick used on the more sophisticated houses or commercial constructions. Stone which is normally used for foundations and street paving is another principal material. Most manufactured products such as toilet fixtures, electrical supplies, wire and hardware are imported, principally from Brazil. Also some sheet metal roofing and asbestos cement is imported, but these materials are seldom used for residential construction.

The materials industry has responded to the sharply increasing demands of the construction activity. However, not without pressure on supplies, and eventually, prices. Chart V-3 shows the price indexes of four basic materials in Asuncion over the last five years. Prices remained rather steady during the 1975 through 1977 period, but sharp increases have occurred during 1978 and especially 1979. Hardest hit were bricks and roof tiles. This is due, in part, to increased demand but also to flooding of the Paraguay River which forced the temporary closing of one of the major brick producing areas near to Asuncion for a period of several months. As the flood waters recede, this area will go back in production and the supply of these clay products will greatly increase and perhaps stabilize or even bring down the brick prices. The construction activities of the major dams have also had some effect on materials supplies, however; this has not been as great as one would expect from the size of the projects. Both of these projects make a major part of the materials used in the construction including most of the cement. Also both Brazil and Argentina will supply a large part of needed materials such as the steel reinforcing and other sophisticated materials not normally used in housing construction.

Inflation in materials prices is certainly the most serious problem of this component. Not only does this make it more difficult for builders or the people themselves to construct housing at affordable costs, but tends to widen the gap between incomes and housing prices, thus eliminating even more families from the formal housing market.

5. Construction Labor

The availability of construction labor, especially skilled operators is at present very tight. The attraction to well-paying construction jobs related to the hydropower projects has caused a drain of labor from Asuncion. This condition will probably persist for the next several years. The peak demand at Itaipu has passed and the Yacyreta project will have less total demand, although it will overlap for sometime with Itaipu. The shortages of skilled labor has caused concern in the construction industry and additional training efforts are being undertaken by the Profesional Formation Institute and through on-the-job training programs of the companies themselves. To what degree these labor shortages affect the supply or relative cost of housing is not easily discernable. Labor rates have gone up during the past year although the team has not been able to find data indicating that construction labor rates have increased faster than other sectors or the general wage increase. The overall minimum wage scale has increased at about the same rate as the low cost housing index. Legal minimum wages have increased over 30% in 1979. To what degree the minimum wages reflect real wages is not known. Needless to say, the wage increases have contributed to the overall increase in construction costs and therefore housing costs.

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