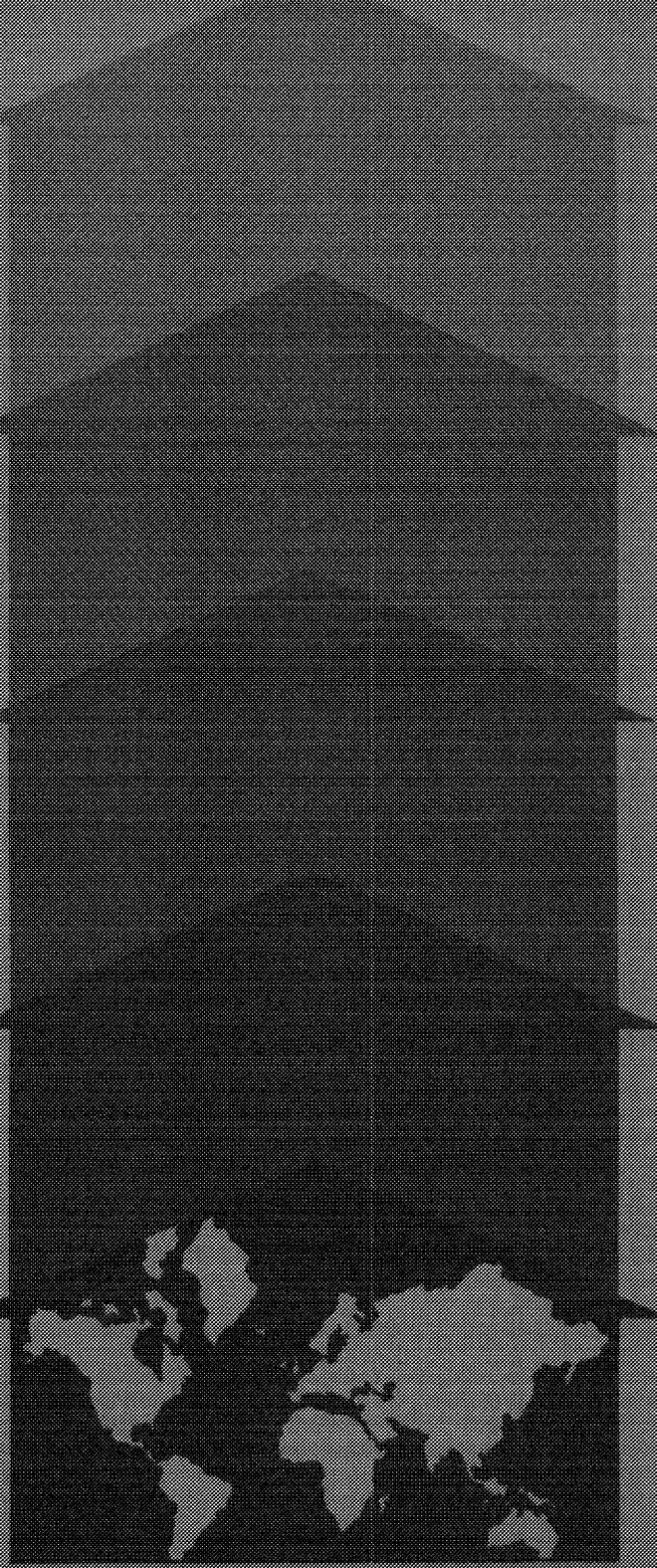


AGENCY FOR INTERNATIONAL DEVELOPMENT

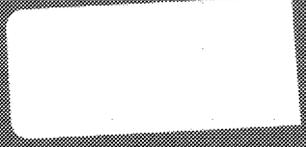
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PRE INVESTMENT
SURVEY REPORT
HOUSING GUARANTY
PROGRAM
KINGDOM OF
THAILAND, 1971
VOLUME B

OFFICE OF HOUSING

Stanley Baruch, Director
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PRE-INVESTMENT HOUSING SURVEY FOR

THE KINGDOM OF THAILAND

VOLUME B

(of Two Volumes consisting of A & B)

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TABLE OF CONTENTS

VOLUME A

1. SUMMARY OF FINDINGS AND RECOMMENDATIONS	<u>Page</u>
1.1. Recommendations	1
1.2. Survey Findings	4
1.2.1. Existing Situation	4
1.2.2. Policy and Institutions	5
1.2.3. Technical Capacity	11

VOLUME B

	Page
2. BACKGROUND	
2.1. Geography and Climate	14
2.2. History and Culture	16
2.3. The Economy	17
3. EXISTING HOUSING SITUATION	
3.1. Population Trends	26
3.2. Infrastructure	27
3.3. Land Values	28
3.4. Overcrowding	28
3.5. Home Mortgage Financing	29
4. HOUSING MARKET	
4.1. Effective Demand	35
5. GOVERNMENT HOUSING POLICY AND ACTIVITY	
5.1. Government Organization	47
5.2. NEDB and Economic Development Planning	53
5.3. Public Institutions	70
5.3.1. Department of Public Welfare	70
5.3.2. Department of Land	77
5.3.3. Office of Town and Country Planning	78
5.3.4. Dept. of Technical and Economic Cooperation (DTEC)	79
5.3.5. Bank of Thailand	81
5.3.6. Government Savings Bank	83
5.3.7. Bank for Housing	86
5.3.8. Bangkok Municipality	88
5.3.9. Crown Properties Bureau	91
5.3.10. Applied Scientific Research Corp.	92
5.3.11. Thammasat University	93
5.3.12. United Nations	94

6.	THE PRIVATE SECTOR	Page 95
7.	TECHNICAL FEASIBILITY	
7.1.	Building Construction Industry	99
7.2.	Availability of Land for Housing	99
7.3.	Typical Construction Methods	101
7.4.	Availability of Construction Materials	106
7.5.	Construction Labor	107
7.6.	Water, Sewage, Electricity	108
7.7.	Construction Costs	111
7.8.	Interim Financing	113
7.9.	Local Regulations and Services	114
8.	CONCLUSIONS	
8.1.	Competitive Program	119
8.2.	Savings and Loan and Homeowners Mortgage Insurance	120
8.3.	Public Housing Programs	122

9. LIST OF APPENDICES

Appendix No.

- 9.1. List of Contacts
- 9.2. BFIT Bulletin
- 9.3. Occupations and Average Wages
- 9.4. Consumer Price Index Details
- 9.5. Commercial Bank Deposits
- 9.6. Wages--Construction Workers, Market Price of Construction Materials, Labor, Material and Job Costs
- 9.7. Newspaper Clipping:
Bids Called for 10,000 Unit Housing Project
- 9.8. Organization Chart of the Department of Public Welfare
- 9.9. Typical Minimum House Plan
- 9.10. Listing of Construction Materials Industry
- 9.11. Sites and Services Cost Estimate
- 9.12. RTG Organization in relation to housing
- 9.13. List of Locally Produced Materials used in the construction Industry of Thailand
- 9.14. List of Imported Materials used in the construction Industry of Thailand

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2. BACKGROUND

2.1 Geography and Climate

The Kingdom of Thailand, formerly known as Siam is located in the heart of mainland Southeast Asia. It has an area of approximately 200,000 square miles--about the size of France. Thailand has common boundaries with Burma on the west and north, Laos on the north and east, Cambodia on the east, and Malaysia on the south. The shape of the country has often been compared to the head of an elephant with its trunk extending down the Malay Peninsula. South of the main portion of the country and east of peninsular Thailand lies the Gulf of Siam.

Thailand's topography is diversified. There are four main geographic regions--central, northeast, north, and south.

The central region is dominated by Thailand's most important river, the Chao Phraya. The land is rich in alluvium and watered by an extensive network of canals and irrigation projects.

The northeastern region, a large plateau rising about 1,000 feet above the central plain, comprises roughly one-third of the country. A great deal of this land is poor because of drought in the dry season and flood in the wet season. The topography of the plateau makes irrigation

difficult, but planned irrigation and flood control projects on the Mekong River, which forms much of the border with Laos, should improve agricultural potential. Completion of these projects, however, is not expected for some years.

Northern Thailand is primarily a region of mountains and valleys and comprises about one-quarter of the nation. The mountains running north and south are forested, and the valleys between them are narrow but fertile.

The southern region, a long sliver of land running from central Thailand down to Malaysia, is covered in great part by rain forest.

Thailand is a tropical land high in temperature and humidity. The climate of much of the country is dominated by monsoons. In most regions there are three seasons: from June to October the rainy season, from November to February the cool season; and from March to May the hot season. Rainfall varies but is generally heaviest in the south and lightest in the northeast.

Thailand's population of 34 million is composed primarily of people of Thai stock. The principal minority groups are an estimated 4 million ethnic Chinese located in the larger urban areas, about 1 million Malay-speaking Moslems in the southernmost provinces, 40,000 Vietnamese in the northeast,

and the various hill tribes in the north estimated at about 300,000. Thai society is predominantly rural in nature and is most heavily concentrated in the valleys and plains of the north, northeast, and central regions. The population growth rate for the nation is 3% per year. Because of migration to the capital city, the population growth rate of Bangkok Thonburi exceeds 5% per year.

2.2 History and Culture

Modern Thailand has maintained its position as an independent country since the 13th century. Great monarchs, combining diplomatic skill with recognition of the need to modernize the state structure, have made it possible for Thailand to survive as an independent state. It is the only country in southeast Asia which was never colonized by a European power. During World War II, Thailand was overrun by Japan and was, in effect, an occupied country. Compared to neighboring countries, the Thais appear strong and self-confident and enjoy a relatively favorable standard of living. The predominant religion is Buddhism.

The defeat of Japan was followed by an era of increasingly close relations with the United States. Thailand saw a threat posed to its independence by the victory of the communist forces on mainland China in 1949 and has been an active participant in efforts to check communist expansion in Asia.

Since the establishment of the constitutional monarchy in 1932 following a revolution which overthrew the last of the absolute kings, Thailand has had eight constitutions and nine nationwide elections. These events have reflected the wide-spread acceptance by Thailand's educated elite of democracy as a desirable objective. However, such governmental changes were innovations for the Thai people and were complicated by stresses related to World War II. There was much political confusion, both before and after the war. The Government was controlled most of the time by military regimes which seized power in a series of almost bloodless coups. The last such coupe took place in 1958 when Marshall Sarit Thanarat took power and announced the intention of drafting a new constitution more suitable for the Thai people. After Marshall Sarit's death in December 1963, leadership of the ruling group passed to his Deputy Prime Minister, Marshal Thanom Kittikachorn.

Prime Minister Thanom reiterated Marshall Sarit's assurances that a new constitution would be promulgated and that elections to a parliament would take place under it. In February 1968 the Constituent Assembly approved Thailand's present Constitution. It was promulgated by the King on June 20, 1968.

2.3 The Economy

The economy of Thailand is fundamentally agricultural. About 25 per cent of the Gross Domestic Product (GDP) of

Thailand is derived from agricultural crops alone; the extractive industries as a group (agriculture, forestry, fishing and mining) provide about one-third of the total. Employment in agriculture accounts for 75 per cent of the labor force. Five agricultural products (rice, rubber, maize, tapioca, and kenaf) constitute nearly two-thirds of the Kingdom's exports, with rice alone comprising one-third. The economy is, therefore, heavily dependent on a very few commodities, a situation which makes it particularly susceptible to unexpected weather conditions and the fluctuation of prices.

Despite its economic vulnerability, the economy of Thailand prospered after World War II and especially during the mid 1950's through most of the 1960's. There were a number of reasons for this. First, there was the stability which characterized the country's internal political affairs essential to promoting the confidence of investors, both foreign and domestic. A strong factor supporting the nation's institutions has been the people's religious devotion and their loyalty to the King. Another factor in the development of the country has been the stability of its currency, a result of fiscal and financial policies which operated to augment currency reserves and maintain relative stability in prices. Each of these developments has served to impart confidence to investors and to create an environment conducive

to economic growth. Furthermore, the inflow of United States dollars for AID and military programs connected with the U. S. involvement in Vietnam has been a considerable economic stimulant, particularly to construction and related industries. New roads created a boom to the economy by improving accessibility to markets and stimulating commerce. Public funds appropriated from the Thai treasury to implement development projects were supplemented by private foreign capital to make a combined contribution to economic growth. Private investment has been encouraged and attracted by tax incentives offered by the government to approved enterprises under the Promotion of Industrial Investment Act of 1962. Such private investment has made for a considerable amount of construction of hotels, office buildings, luxury apartment houses and modern commercial centers. All of this has led to the enormous development and capacity in the private sector of the construction and material supply industries. This growth of construction and material supply industry occurred primarily in Bangkok, by far the largest city in Thailand and the focal center of the country.

It must, however, be recognized that there are in reality two economies in Thailand--one which is almost wholly dependent on agriculture, where levels of income are low and the rate of advance is sluggish, and the other based on trade and industry, where levels of income have been comparatively high

and the rate of growth substantial and accelerating until the present decline in general business conditions.

The dependence on agriculture was clearly demonstrated when drought struck Thailand's crops in 1967 and 1968, forcing a decline in the overall rate of growth of the economy (GDP) to 4.6 and 6 per cent respectively (at 1962 prices), in contrast to previous rates exceeding 8 per cent.

Thailand's rate of economic growth since 1969 has continued to be lower than expected. External pressures, including the unsettled military situation in the area and falling world market prices for Thailand's major exports were accompanied by internal pressures resulting from lower income to the agricultural sector, falling wholesale prices and reduced levels of government revenue.

Informed opinion would indicate the major causes that are contributing to the present slow rate of economic growth and recessional trend are as follows:

1. Bad crops due to weather conditions in 1968-1969 resulted in a reduction of export earnings in 1969.
2. Accumulated effects resulting from the self-sufficiency policies of the traditional rice importing countries in Asia have produced a rice surplus. This has contributed to an adverse effect on Thailand during 1970 and 1971 in selling

rice on the international market and may continue in the foreseeable future.

3. Thailand's current balance of payments deficit has been due to an increasing demand for imported goods in 1969 and 1970 and less foreign exchange earnings for exported goods for the same period. The reduction of U. S. military expenditures in Thailand has also accentuated the balance of payments situation.

4. Continued increases in government ordinary expenditures, development expenditures and an increasing share of defense expenditures coupled with a revenue fall in import taxes (caused by import taxes hike in July 1970) and the decline in sales tax revenue has resulted in a reduction of trading activities in import trade, especially in the wholesale and retail trades. The multiplying effects, of course, works on other sectors of the economy such as the transport and services sectors which accentuates the decline in general business conditions.

5. A loss of confidence in the state of the economy by the general public has led to a curtailment in consumer spending. Furthermore, the decrease in business investment has made for a slow recovery.

6. The slow paced recovery of Thailand's economy is partly due to the conservative view point of the Royal Thai Government reflected in its 1972 expenditure budget with an increase of only 1.2 per cent over the previous year. This

negative attitude of the RTG will not bring about a rapid recovery of the economy. A rapid recovery, if there will be one, will depend on capital investment coming from either foreign governments, foreign private investment, international organizations, or by joint ventures of the Thai and foreign private enterprises in reinforcing domestic investment. Such investment is doubtful due to prevailing business conditions in Thailand and the worldwide recessions which a number of countries have been experiencing.

7. One of the big foreign exchange earners, tourism, shows signs of stagnation. RTG officials and planning experts are in agreement that the RTG should undertake rigorous action at this time to reverse the economic trend from the present slowdown in rate of growth to a level of growth enjoyed in the previous decade.

Of special importance in this regard is the matter of housing and construction in Thailand. The construction boom of the past decade gave the nation new roads and office buildings, factories, dams, hotels luxury homes, airfields, public buildings and considerable employment has passed its peak of a few years ago and has slowed down appreciably. During the 1960's the construction industry expanded into one of the most energetic sectors of the economy. Its growth can be judged by the figures shown below from the National Accounts of Thailand of the comparative value of construction and the gross national

product throughout the sixties:

<u>Year</u>	<u>Construction</u>	<u>GNP</u>
1960	2,461	53,885
1961	2,680	58,877
1962	3,270	53,695
1963	3,632	68,038
1964	4,181	74,667
1965	4,705	84,292
1966	6,177	101,367
1967	7,395	108,392
1968	8,177	117,307
1969	8,622	130,839

Construction's share in the GNP during the sixties rose from 4.6 per cent in 1960 to 6.6 per cent in 1969. During 1967 and 1968 construction's share in GNP reached 6.8 and 7.0 per cent, respectively. The average growth rate for the industry during the decade was 15.2 per cent, fifth highest of all Thai industries, after electricity and water services, banking, insurance and real estate, mining and quarrying, and fisheries.

The growth of the industry is further indicated by these figures gathered by the Department of Labor, indicating the numbers of workers employed in various capacities by the construction industry:

1954	28,440
1960	68,260
1966	110,687
1971 (est.)	165,000

In the years from 1954-1970, the percentage of the nation's work force estimated to be employed in construction

rose from 0.3 per cent to 1.0 per cent--the greatest percentage increase in any of Thailand's industries. (Manufacturing ranked second). In Greater Bangkok, during the peak years of 1966-67, it was estimated that 7 per cent of all male workers and 2 per cent of all female workers were involved in construction.

Much of this growth can be traced directly to the vast input of U. S. funds for military construction, which totalled about \$400 million over a decade, most of it in the period when Thailand's major military bases were built-- U Tapao and Sattahip at a cost of \$118.6 million, Korat at \$46.2 million and other smaller bases, communications sites, roads, barracks, utilities systems, clubs, and all the other required support facilities which brought the total cost as of June 30, 1967, to \$337 million (a figure cited in a report to the U. S. Congress).

This activity spilled over into the civilian sector and much loose capital then available was put into such "safe" investments as office buildings, hotels, shopping centers, shophouses and undeveloped land, giving further impetus to the construction industry.

Presently a good number of these office buildings, shopping centers and shophouses have not been rented and remain vacant following the three or four years since completion. Many of the hotels are experiencing serious vacancies.

The situation in which Thailand now finds itself is one which highlights problems of coordination and places a premium on strong, effective government leadership. Finding new markets for its limited list of primary products, improving the quality of exports, facilitating increased tourism, and promoting a higher rate of foreign investment require actions with which the government is now actively concerned.

3. EXISTING HOUSING SITUATION

3.1 Population Trends

Preliminary figures based upon the latest population and housing census conducted in April 1970 by the National Statistical Office indicate that as of April 1, 1970 there were a total of approximately 5,804,000 households and a total population of 34,152,000 people in Thailand. Of this number, Bangkok has 2,132,000 inhabitants and Thonburi has 919,000. Over the past 10 year period migration into the Bangkok municipal area (Bangkok & Thonburi) has been about 90,000. In all probability, this total is even higher if seasonal workers are taken into account.

Looking back at the Census of 1960, the population of Thailand at that time was 26,392,000. The Bangkok and Thonburi total population was 2,136,435. Compared with a national average annual population growth rate of 2.66 per cent, the annual growth rate of Bangkok has exceeded 3 per cent and has been even greater when considering the 5.08 average rate of population growth for Thonburi. Even at a continued 3% annual growth rate, Bangkok will have a population of about 4-1/2 million people by 1980. This rate of growth has been due to a combination of natural growth and migration from rural areas to the city made inevitable because of the city's strategic and central location as the seat of government, the center of communication, and the focal point of industry.

Over 90 per cent of all city dwellers live in the Bangkok municipal area. Bangkok with its 2,132,000 inhabitants is over twenty times the size of the next largest city (Chiangmai).

The municipal area of Bangkok-Thon Buri extends over 290 square kilometers. Population density is roughly 10,000 persons per square kilometer. The estimated 372,000 residential dwellings, 67,500 business houses, 12,200 factories and 1,350 educational facilities in the city consume 394,000 kilowatts of electricity per day, and 800,000 cubic meters of water. The city's 220,000 registered vehicles travel over a road system of 35.2 square kilometers in area.

3.2. Infrastructure

Physical facilities have not kept up with this growth pace. The results are a shortage and an inadequacy of housing, schools, roads, electricity, public transportation and utilities.

There is a general shortage of water supply, particularly during the dry season. The deep well program undertaken during the period (1966-71) does not produce an adequate supply of water, and the number of wells abandoned annually increases because of a growing salinity content of underground water. The distribution system has also not been extended sufficiently because of the rapid growth of the city, lack of a city plan and lack of land use control.

3.3. Land Values

The rate of construction of housing has lagged well behind the city's rapid rate of population growth. One of the main reasons is that rising price of land, reflected in the cost of housing, is pricing the average home buyer out of the market. Due to lack of controls, land prices in Bangkok-Thonburi have become highly inflated. Land taxes are low. If the owner lives on his property, they are negligible. The recent economic boom caused a high demand for land in Bangkok for various purposes. The absence of land use controls and effective land taxing has resulted in rampant speculation. In many areas land is far too expensive for housing. What is left usually presents difficult access or site conditions, and is still too expensive for most incomes. The emergence of large squatter settlements shows plainly that many lower income families can afford to build some sort of house if relieved from the burden of expensive land.

3.4. Overcrowding

The high cost of land and the continuing rapid growth rate of metropolitan Bangkok are contributing greatly to overcrowding of existing housing stock. New housing construction is restricted by the large proportion of financial

resource (up to 60% of total cost) required for land and development. Lower and moderate income families crowd into scarce rental units. Many families live with relatives to share costs or when other housing is not available. The lack of long-term financing also inhibits new housing construction, contributing to overcrowding.

3.5. Home Mortgage Financing

Ten years ago there were no stock exchanges, investment companies, stock brokers, mutual funds or development banks in Thailand. There were the existing commercial and savings banks and provident and pension funds. The very limited amount of funds made available for housing by commercial and savings banks were and still are made for upper income housing. They require a substantial cash outlay (50% of market value) from the home buyer under five year term financing or less. Such financing as was offered is extended by the builder developer who assumes the risk of collection. Pursuant to Thailand's development of a capital market, there has emerged some limited amount of additional resources for home finance through some of the newer and specialized financial institutions.

Although the only asset that can be registered in Thailand to provide security for financing is land and the real property on such land, commercial banks still appear reluctant to make such financing available. One reason

given is that although the bank can resort to legal action to reclaim any losses due to default or delinquency, foreclosure proceedings in court can be contested by the Mortgagor. Such cases can drag on for two or more years.

Arranging non-bank financing for medium to long-term loans is presently possible only to a very limited extent in Bangkok. Several newly formed investment and development finance companies are engaging in this form of financing, but at exceedingly high rates.

Primarily, these companies arrange for the issuance of debentures for periods up to five years at interest rates ranging from 12-15%. They also issue common or capital stock. These issues are generally guaranteed by a bank, and recently some banks have become owners of businesses.

This relatively new phenomenon of selling local debentures and stock issues achieves the effect of channelling Thai savings into medium and long-term financing as well as into ownership of local firms. This activity offers some offset to the banks lack of providing such financing.

Experience indicates that commercial banks will not invest in long-term mortgages at reasonable rates unless they are offered special inducements. In many countries the introduction of a government guaranty for homeowner repayment has resulted in the release of substantial sums from commercial banks to the long term financing of low and middle income housing.

The roots of home ownership lie deeply in the traditions of Thailand. Few Thai families will willingly rent if they can obtain home ownership. However, with the increase in population and shortages in housing, home ownership becomes increasingly more difficult to realize, especially by middle or low middle income families.

The outstanding private homeowner scheme making home ownership available with low down payment and long-term financing has been the Soi on Nuj Housing Project for which the long-term investment for mortgage financing is guaranteed by A.I.D. with mortgages insured and administered by the Bangkok Bank.

The Bank of Ayudhya began a housing scheme in 1965 under its plan for savings account loans for housing, education, etc. For housing, the depositor deposits money each month for at least two years for which he receives 7% per annum interest. After an agreed to period, the depositor may receive a loan equal to double the amount of money deposited at 12% interest instead of the 14% paid on the banks other loans. The plan, however, requires monthly deposits of at least 300 Baht. The maximum loan is 120,000 Baht. Many depositors find it necessary to withdraw all or a portion of their deposits prior to completing the plan.

Examples of the newly formed investment and development finance companies engaged in home financing are BFIT (Bangkok

First Investment and Trust Co., Ltd.), formed by the Bangkok Bank and First National City Bank and the Thai Investment and Securities Co. (TISCO).

BFIT, among other indicated services such as securities underwriting, investment management and industrial services offers limited assistance in financing housing projects and apartment houses. Maximum term of mortgage is 10 years. The present volume is very small.

The Bangkok Banks' experience with the Soi on Nuj Project (mentioned above) has been instrumental in encouraging the setting up of the Bangkok Home Development, Co., Ltd., under BFIT with the aim of providing additional long-term financing for housing development under reasonable terms. A copy of BFIT's May 1970 bulletin which describes its plans and activities in housing for middle income families is shown in Annex 9.2. BFIT has expressed considerable interest in the possibility of an RTG system of homeowners insurance.

TISCO, a private investment organization connected with the Thai Farmers Bank, among other services it offers is also interested in making possible home ownership for middle and lower-middle income families but has written few loans to date.

TISCO has outlined a plan for the establishment of a private savings and loan institution within the framework

of existing conditions and laws in Thailand. It is intended that such institution would finance up to 3,000 low and middle-income homes yearly within the first five years of operations. The total cumulative funds that would be committed by the end of five years would reach B one billion. Of this amount, 20% would be expected to come from equity and seed capital, 40% from local and foreign trading and 40% from savings and deposit plans. The Savings and Loan Institution would be a private company with equity capital from several parties, namely, a land owner, suppliers of construction materials, local banks, insurance companies, foreign investment and the Thai public. Its lending policy would be profit motivated but development-oriented, meaning that there would be an expectation of reasonable return but profit would not be the only objective. The company would also be expected to eventually raise its own funds from a nation-wide savings and loan branch system.

This institution would:

- provide loans and other financing for housing;
- screen housing projects or individuals applying for loans;
- provide assistance to local builders and developers in making feasibility studies for housing projects;
- review construction and housing projects on the technical and financial aspects;
- provide collection and administrative services on loans;
- seek long-term funds through savings and deposit plans.

Proposed shareholders and promoters would include the Crown Property Bureau, Siam Cement Group, Thai Farmers Bank, Siam Commercial Bank.

With respect to its savings plan for housing the plan would have the following characteristics:

- monthly "savings" deposits;
- eligibility for home loans after maintaining a regular savings record over a period of 1-5 years;
- depositors who have maintained regular savings deposits would be eligible for home loans at favorable interest rates, depending on the length of the savings period;

In the case of TISCO, being able to purchase a home would be tied to a plan for savings, while BFIT financing would be more in line with being able to obtain financing for the purchase of a home based on satisfactory credit and character and the ability to make regular monthly payments.

The limited housing finance made available through government sources is described in Section 5 below.

4. HOUSING MARKET

There is a considerable amount of information available with which to arrive at estimates of home construction needs, family incomes, population, etc. This information varies in quality and is often contradictory. Much of this information is not current. However, allowing for a margin of error, certain conclusions can be made from the data which is available.

The 1962 Household Expenditure Survey conducted by the National Statistical Office (NSO) for the Bangkok-Thonburi municipal area offers a starting point in delving into the housing market for Bangkok-Thonburi. Although the monetary amounts of income and family expenditure have changed since then (salaries have gone up and prices of consumer goods have increased) the survey is still valuable in demonstrating how families in the provinces of Bangkok-Thonburi function with reference to income, expenditures and other characteristics.

It was estimated that, in March 1962 when the survey began, there were about 1,786,000 persons living in private households in the municipal area out of the then existing population of about 2 million people.

A labor force survey conducted in August 1969 estimates the civilian noninstitutional population for the Bangkok-

Thonburi municipal area at 2,950,400 (including both men and women), a figure relatively close to the 3,051,000 given in the preliminary 1970 census report. Of these, 1,090,800 men and women, or almost 50% are members of the labor force. Those who are not in the labor force consist of homemakers, students and persons less than 11 years of age or persons 60 years of age or over who are retired or unable to work.

Certain conclusions which appear still applicable can be drawn from the 1962 survey:

1. Average family size is 5.5 persons.

Twenty-six percent of all families had eight or more members. About 36 percent of all families were composed of father, mother and their own children. Another 24 percent consisted of father, mother, children, with other adults in the family unit. Families with only one parent represented 14 percent of the total. In most of these cases, the father was the missing parent; 85 percent have the mother as head of the family.

2. On the average, there are about two income earners per family.

Income of individual families varied considerably and was closely related to family size, number of earners, and other family characteristics. Larger families had more members employed, and each additional earner contributed to

total family income. For example, families who reported less than 6,000 baht of annual income had an average of almost three members of whom one was an income earner, while families who received 36,000 to 60,000 baht averaged eight members and had about three active earners.

3. Education of the head of the family appears to be an important factor in determining family income. Families where the head of the household had no formal education or had completed four grades or less in primary school, received on the average 1/5 of the income received by those families where the head of the family held university degrees. Families having a salaried professional or technical worker reported the highest average income (3,206 baht per month). Families having a self-employed person, mostly shopkeepers, were next with an average of 1,686 baht. Monthly income of families having unskilled laborers or domestic service workers averaged 692 and 436 baht, respectively.

4. The average income of municipal area families represent the pooled earnings of all members of the family who are economically active.

These averaged about 1.8 earners per family.

5. Family heads account for the largest share of average family income.

In families where the husband and wife were both present, the family head contributed about 75 percent of the average family earnings. This included the total earnings of family

enterprises in which the head of the family was actively engaged. Spouses contributed 12 percent of total direct earnings, children 6 percent, and other family members 7 percent. In addition 15 percent of all spouses, 4 percent of all children, and 10 percent of all other family members, were engaged in family enterprises as unpaid workers.

In families with only one parent present, the head earned about 58 percent of the average family income while children and other family members contributed equal shares of the balance. In other types of family groups the head contributed 57 percent of the average income and others 43 percent.

6. The major part of average family income in the municipal area comes from wages and salaries.

Fifty-two percent came from wages and salaries. Thirty-seven percent was from the operation of family enterprises and business and professional establishments; and the balance was from other sources. Although wages and salaries accounted for the largest share of income at every income level, they represented a decreasing proportion of the total as income increased.

7. A relatively small percentage of family expenditures are made for shelter and home maintenance.

About 45 percent of the total family expenditures went to purchase food and non-alcoholic beverages, 9 percent was spent for clothing, and 16 percent went for shelter and maintenance of the home. Health and personal care took 7 percent and another 6 percent was paid for transportation costs. Over 13 percent of total family expenditures was spent for reading materials, education, recreation, alcoholic beverages, tobacco and miscellaneous items.

The manner in which families distributed their income to purchase different kinds of goods and services was related to family characteristics, especially level of income, and whether or not the family owned or rented a dwelling or received rent free. Families in the lowest income class spent 54 percent of their total outlays to pay for food and beverages, compared with only 33 percent devoted to this purpose by the high income class. At the higher income levels, families spent relatively more for fuel, electricity and other items necessary to operate the household; for transportation, reading, recreation and education; and for miscellaneous expenses such as weddings and ceremonies. At the lower income levels relatively more was spent for medical and personal care, tobacco and alcoholic drinks.

Families who rented their dwelling spent relatively more than homeowners for shelter, furnishings, fuel, light and other goods and services necessary for maintenance of the home. Homeowners, about 25 percent of whom owned auto-

mobiles, allocated proportionately more of their total expenditures to transportation, recreation, reading and education. Families who received housing rent-free needed to spend only six percent of their total for housing and household operations, and devoted 60 percent to food, beverages and tobacco. They also spent relatively more of their total expenditures for clothing.

An experimental survey of wages by occupation was conducted in the Bangkok area by the Department of Labor in October 1969. It was found that average wages of professional technical and related technicians were 2,165 baht per month. Accountants averaged 2,244 baht per month while administrative, executive and managerial workers averaged 2,764 baht per month. Clerical and related workers averaged 1,389 baht. Sales workers and service workers averaged 1,417 baht and 649 baht per month, respectively.

A selective listing of occupations and average wages taken from the experimental survey are itemized in Annex 9.3.

The table below shows the distribution of employed persons by occupation for the Bangkok-Thonburi area. Sales workers lead all other occupation groups.

NUMBER AND PERCENTAGE OF EMPLOYED PERSONS BY OCCUPATION

Occupation	Bangkok-Thonburi Municipal Area	
	No.	Percent
Total	1,073,300	100.0
1. Professional, Technical and Related Workers	60,500	5.6
2. Administrative, Executive and Managerial Workers	44,600	4.2
3. Clerical Workers	104,200	9.7
4. Sales Workers	335,100	31.2
5. Farmers, Fishermen, Hunters, Loggers and Related Workers, Miners, Quarrymen and Re- lated Workers	19,100	1.8
6. Workers in Transport and Communication Occupations	69,500	6.5
7. Craftsmen, Production Process Workers and Laborers	307,500	28.7
8. Service, Sport and Recreation Workers	132,400	12.3
9. Workers not Classified by Occupation	400	*

* Less than 0.1 percent

Source: Report of the Labor Force Survey, July-September 1969

The 1962 survey indicated that over one-half (52 percent) of all families in the area received less than 12,000 baht

during the year; 37 percent had annual incomes ranging from 12,000 to 36,000 baht; 11 percent received 36,000 baht¹ or more. The data shown above with respect to wage rates by occupation and percentage of employed persons by occupation would appear to confirm a similar distribution of present family income, assuming that the estimated 545,000 families include one employed person in the professional, administrative, clerical or sales worker categories. For example, according to the 1969 data, 9.8% of employed persons are professional, technical, administrative, executive and managerial workers earning on the average about 26,000 and 33,000 baht per year. In terms of family income, an additional 40% may conservatively be added to substantiate family income of 36,000 baht or more.

The 31.2% employed sales workers and the 9.7% employed clerical workers earning on the average of about 17,000 baht per year would similarly appear to substantiate family incomes in the 12,000 to 36,000 income range.

In terms of estimated number of families (545,000) and the above indicated assumptions, the number of families in the income brackets described would be as follows:

<u>Family Income Range</u>	<u>% of Total Families</u>	<u>Number of Families</u>
Less than 12,000	49.3	268,670
12,000 to 36,000	40.9	222,890
36,000 or over	<u>9.8</u>	<u>53,440</u>
	100.0	545,000

1. 20 Baht = US \$1.00

According to the 1962 survey, about 16% of family income went for shelter and maintenance of the home. The reported averages for housing, household operations and furnishing which may serve as a guide to family patterns of housing expense in relation to income appear relatively low compared to the usual 25% mortgage payment to family income rule of thumb criteria considered in qualifying middle income homebuyers. It is true that as family income increases, a greater percentage of such income can be earmarked for housing expense or the opposite is true as family income diminishes.

In the Soi on Nuj housing guaranty project homebuyers were qualified on the basis of a minimum 25% ratio of family income to mortgage payment. It is interesting to note that the successful utilization of this criteria by the Administrator of the project is being continued by the Administrator's recently formed financial service company (BFIT) described in this report.

Assuming that middle income families can and will allot 25% of their income to mortgage payments we can arrive at the following breakdown of what we may call a reasonable maximum market for houses in the Bangkok-Thonburi municipal areas.

Annual Family Income (Baht)	Number of Families	Monthly Income Available and Monthly Mortgage Payment (Baht)	Range of Selling Price Limitations (Baht)
Less than 12,000 (1,000 per month)	268,670	0-250	0-25,250
12,000 to 36,000 (1,000 to 3,000 per mo.)	222,890	250-750	25,250-75,750
36,000 to 48,000 (3,000 to 4,000 per mo.)	30,540	750-1000	75,750-100,900
48,000 to 100,416 (4,000 to 8,368 per mo. or more)	22,900	1000-2092	100,900-200,000
	<hr/> 545,000		

The above calculations on selling price and mortgage payments reflect a 10% down payment on selling price to provide a mortgage amount having the indicated monthly payment that will amortize the mortgage over a period of 20 years at 12% interest per annum.

It is, of course, obvious that the families earning less than 1000 baht per month and a large percentage of families in the 1000 to 3000 per month income range cannot afford to purchase houses at a cost of over 75,000 baht, the minimum house considered feasible to construct as determined by the cost studies included in this report. On the other hand, families earning 4,000 baht per month can afford to purchase housing having a selling price of 100,000 baht. Those families earning 8,000 or more baht per month can afford housing having a selling price of 200,000 baht.

According to the 1962 survey, families who owned their own house and land had an average monthly income of about 2,940 baht, compared with 1,540 baht received by those who rented houses, and 1,303 baht received by those who rented rooms. The major part of average family income in the Municipal Area (52 percent) came from wages and salaries.

4.1 Effective Demand

Statistics developed by the NEDB indicate that there are 60,000 low-income families in the Bangkok-Thonburi Metropolitan Area who are homeless or living in squatter settlements. Slums and squatter settlements are to be found throughout the city, the largest of which is located at the Klong Toey Port area. There are about 4300 families (about 25,000 persons) living in this slum area as squatters. In all of these squatter areas there is a lack of public utility services. These families live in ramshackle houses built of paper, tin or scraps of building materials or obtain shelter on public or private property, under bridges, on sampans and barges or wherever shelter can be found.

It is estimated that an additional 40,000 middle income families are badly in need of improved housing. There is, therefore, a currently existing need for 100,000 housing units in the Bangkok-Thonburi Municipal area.

The Department of Public Welfare is planning the initial construction of 10,000 housing units for low-income families

(families earning less than 1500 baht per month) and an additional 5,000 units annually over the next ten years. It would appear that this amount of construction will only satisfy the present estimated shortage of low-income housing.

Assuming a continuation of the present growth in population, there will be an additional 405,000 families by the end of the decade or a total of about 950,000 families living in the Bangkok-Thonburi area by 1981. Even with the housing that can be constructed under RTG auspices and under the private sector the housing shortage will continue as a problem of major dimensions. Increased RTG assistance can help to cope with the problem of providing adequate housing for the lower-income groups. The availability of adequate financing will serve to mobilize the efforts of the private sector to supply homes for middle and lower income families. The present cutback of construction activities offers the construction industry a challenging alternative which can be realized with the release of private capital to long-term housing finance.

5. GOVERNMENT HOUSING POLICY AND ACTIVITY

5.1 Government Organization

The revolution of 1932 dissolved the absolute power of the King of Thailand and established a constitutional Monarchy. The first constitution, promulgated in 1932, acknowledged that sovereign power belongs to the people. It retained the King as head of state, but allowed that he exercise power only through a Bi-cameral Parliament, a Council of Ministers, and courts of law.

Since 1932, there have been several provisional constitutions. The present constitution, adopted in 1959, gives the King power to appoint (or dismiss) a Prime Minister, Members of the Council of Ministers, and members of the Constituent Assembly (upper House of Parliament). The Assembly is comprised of 240 members and is charged with making laws and drafting a permanent constitution. Members of the House of Representatives (lower house) are elected by the people.

The Council of Ministers (cabinet) exercises administrative powers of government in the name of the King. It consists of twelve Ministers and the Prime Minister.

The twelve Ministries are:

Interior	Defense
Finance	Foreign Affairs
Agriculture	Communications
National Development	Justice
Education	Economic Affairs
Public Health	Industry

The head of each Ministry is its political chief--the Minister--who is responsible to the Cabinet for the proper functioning of his Ministry and its subordinate Departments. The Minister may be assisted by a deputy or Assistant Minister holding political appointment. Each Minister has attached to him a political secretary or secretaries whose appointment and removal is effected by the Cabinet. In each Ministry, the secretary, his assistants and staff form the Office of the Secretary to the Minister.

The Office of the Prime Minister is the vital center of the Government. The Prime Minister receives help from personnel in his own office and from several other administrative agencies. At present, he is assisted by two Deputy Prime Ministers, a Minister in Charge of the Office of the Prime Minister, an Assistant to the Prime Minister, a group of personal advisers and a corps of special staff assistants.

One of the major developments of the Prime Minister's office is the growth of policy planning and policy control devices within the office. The Bureau of the Budget, which prepares a preliminary national budget, serves as a chief instrument of coordination and control for the Prime Minister. The creation of the National Economic Development Board (NEDB) symbolizes the effort to strengthen the economic planning apparatus of the Nation's chief executive (See 5.2.1) Also

The Ministry maintains the public domain and grants land deeds and titles through its Land Department. It engages in public works through its Department of Public and Municipal Works and physical planning through its Office of Town and Country Planning.

The most recent addition to the Ministry of the Interior is the Department of Labor. The setting up of this new Department is in response to growing labor problems arising out of current industrial development within the country. The responsibilities of this Department include seeking closer cooperation between labor and management, and in case of conflict, finding ways and means to settle disputes, finding jobs for the unemployed, and seeing to it that industries observe health and safety standards for their employees.

The Ministry of Finance is one of the oldest Ministries. Prior to 1959, the Ministry prepared the annual national budget and approved requests for additional personnel submitted by the other agencies. These responsibilities have been transferred to the Bureau of the Budget of the Office of the Prime Minister. The Ministry of Finance now supervises and manages national finances. The Ministry collects revenues and controls disbursements from the national treasury, prescribes standards and forms for keeping and rendering public accounts, issues currency, controls and regulates banking,

state properties, custom duties, and operates government monopolies. The Ministry is divided into the Office of Fiscal Policy, the Departments of Treasury, Customs, Revenue, Excise and the Comptroller-General Department.

The Ministry of National Development was created in May 1963. Prior to its establishment, responsibilities for implementing the plan for national development of the Government were carried out by various Departments of different Ministries, which created problems of coordination among these agencies. The Ministry of National Development is, therefore, set up by bringing under a single command the Department, located in different Ministries, whose work is of prime importance in carrying out the national development plan. This Ministry is charged with coordinating and expanding both economic and social development activities of the Government. Its aim is, in the words of the former Prime Minister, to "bring in a new epoch of efficiency, speed, coordination and economy in all areas of national development." The significance which the Government attaches to national development activities is manifest in the fact that for the past years, this Ministry receives a lion's share of the budget. The Ministry, through its Department of Technical and Economic Cooperation (DTEC) works with foreign governments and organizations in coordinating technical and economic AID programs to Thailand (See Section 5.3).

Other government functions are carried out by government public corporations. The public corporation is an administrative device designed to give more freedom of operation to government agencies. There are about forty important public corporations which are responsible for some special areas of government activities. Some public corporations such as the Port Authority of Thailand, the State Railway of Thailand and the Yanhee Electricity Authority are engaged in the activities which are not only vital to the national interest but are too costly for private venture. Some public corporations are created for security or military purposes. Some public corporations are set up for the purpose of promoting certain kinds of industries. Such corporations include the Tourist Organization of Thailand and the Bank of Agriculture and Agricultural Cooperatives. Some public corporations have as their purposes provision of some kinds of service to the public.

These public corporations are placed under the supervision of the relevant Ministries. The Ministers concerned are usually ex officio chairmen of the boards of the corporations. While some members of the boards are appointed by the Cabinet, others are ex officio members. The directors of the public corporations are cabinet appointees. Under the general supervision of the Government, they develop their own administrative systems. Thus, they set up their own personnel regulations which are independent of the national civil service system.

However, in adopting these systems, prior approval of the Cabinet is needed to ensure general uniformity.

5.2 The National Economic Development Board and Economic Development Planning

5.2.1 The National Economic Development Board (NEDB)

History

There were no development plans per se under Thailand's economic system in the pre-World War II period. After World War II, the major economic problems faced by Thailand made the more active participation of the RTG in national economic development essential. In 1950, a National Economic Council was established, the functions of which were to offer suggestions and advice on national economic policy to the RTG.

By 1956, it was generally agreed that a basic economic development plan should be adopted for the good of the country. The World Bank assisted in conducting a survey of Thailand's financial and economic conditions during 1956-1957 which led to the drafting of a National Economic Development Plan and the passage of the National Economic Development Board Act B.E. 2502(1959). At that time, the National Economic Development Board was appointed and the act which created the National Economic Council was repealed.

Organization

The National Economic Board Act of 1959 further amended in 1960 and 1966 provides for three inter-related entities

as follows:

1. The National Economic Development Board having the Prime Minister as Chairman, Deputy Prime Minister as Vice Chairman, and other members appointed by the Council of Ministers. The NEDB membership consists of two categories, i.e. ex officio members and members appointed by the Council of Ministers. The NEDB functions generally to:
 - a) study and consider matters concerning economic development as entrusted by the Council of Ministers.
 - b) consider proposals within its jurisdiction as provided in the Act and offer its comments to the Council of Ministers.
 - c) offer suggestions to the Prime Minister on matters concerning economic development as requested by him.

2. The National Economic Development Executive Board has the Governor of the Bank of Thailand, Director of the Budget Bureau, Director-General of the Department of Technical and Economic Co-operation, and Secretary-General of the National Economic Development Board as ex officio members, and other qualified members appointed by the Council of Ministers. The functions of the Executive Board are delegated by the NEDB to act in NEDB's behalf pursuant to its three general functions (as stated above) with the exception of development work on the National Economic and Social Develop-

ment Plan. The Executive Board exercises supervision over the work of the Office of the NEDB, pursuant to its delegated functions.

All matters, before submission to the NEDB for consideration, must first be forwarded to the Executive Board by the Office of the NEDB for its screening.

Both the NEDB and the Executive Board are empowered to appoint one or more sub-committees for considering any matters or taking any action entrusted by them.

3. The Office of the National Economic Development Board
The Office of the National Economic Development Board being a political body having the status of a department under the jurisdiction of the Office of the Prime Minister reporting directly to the Prime Minister consists of the Secretary-General of the NEDB as Supervisor and two Deputy Secretaries-General. The post of the NEDB Secretary-General is equivalent to an Under-Secretary of State.

Functions and Responsibilities

The specific functions and responsibilities of the Office of the NEDB are to:

- a) Analyze and study economic conditions and submit to the National Economic Development Board the objectives of economic development and policies to be followed towards economic stability and development.

- b) Study economic development plans and projects of ministries, bureaus, government departments, and state enterprises in conjunction with these entities; co-ordinate such plans and projects for blanket planning for a specific period of time according to objectives of economic development as resources and priorities will permit, for submittal to the National Economic Development Board.
- c) Study matters regarding financial means and other resources as available and acquirable, and suggesting to the National Economic Development Board how the Government's financial requirements should be met.
- d) Make suggestions in consultation with ministries, bureaus and government departments with respect to their budgetary provisions for economic development.
- e) Examine expenses incurred and amounts applied for maintenance of permanent resources for economic development, in order to advise and recommend any adjustments of expenses necessary for effective maintenance of such resources.
- f) Examine expenses incurred and amounts applied for the rendering of economic services in order to advise and recommend any adjustments of such expenses.
- g) Consider applications for foreign technical and financial aid and loans, applications for additional aid; to give advice concerning programs of foreign aid and to take necessary action in collaboration

with the ministries, bureaus, government departments and state enterprises for coordination of work connected therewith. In applying for foreign aid, the Office of the NEDB may offer suggestions that additional aid be sought as deemed appropriate.

- h) Audit and report on achievements of economic development projects of ministries, bureaus, government departments and state enterprises and give advice and recommend appropriate action in regard to expediting, suspending, revising, or cancelling any projects deemed necessary.
- i) Adopt measures to enhance economic development for submission to the National Economic Development Board.
- j) Study and suggest economic development plans and projects of companies or juristic partnerships which are not state enterprises but where the Government is one of the shareholders and such companies and juristic partnerships agree to implement such projects as if they were state enterprises.
- k) Carry out other legal requirements prescribed for the National Economic Development Board or the Office of the National Economic Development Board.

It should be recognized that although the functions of the NEDB are extensive, the NEDB is not authorized to make decisions independently pursuant to its operations. Proposed

decisions require submission to the Council of Ministers or the Prime Minister, as appropriate, through the Executive Board or the NEDB.

The NEDB has no decision making powers or power to issue any instructions to any government department other than making suggestions or comments or deciding on development projects, according to resolution of the Council of Ministers. In effect the Office of the NEDB and the Executive Board act as technicians of the Council of Ministers and the Prime Minister.

5.2.2 Five-Year Plans

Traditionally, Thailand's economic growth was achieved without much participation from the government. However, since the second World War, the government has found it necessary to take an increasingly active role in the economic development of the country. In 1961 the first economic development plan was established. This five-year plan was in effect from 1961 to 1966. A second economic development plan governed the period 1966-1971. A third plan, for the period 1971-76, has been drafted by the NEDB but not yet officially adopted by the RTG.

It is apparent that, during the past two plans, the government invested heavily in infrastructure, mostly roads, dams, and power systems. Urban development in the Bangkok metropolitan area and other cities received a low priority.

During the First Plan the government built 20 housing projects for low income families accommodating 1312 families. During the Second Plan public housing for low income families in the Bangkok metropolitan area was increased to provide for 2736 families. Housing with land, built for middle income families, amounted to 621 units. Only 186 houses were constructed in the provinces.

The Government set up the Metropolitan Waterworks Authority as a public enterprise by consolidating the waterworks of Bangkok, Thonburi, Nontaburi, and Samut Prakarn with the hope that the new Authority would be in the future able to finance itself and reduce the amount of government annual subsidy. During the First Plan, the Government built up additional capacities of the Bangkok and Thonburi water treatment plants from 175,000 to 372,000 cubic meters per day. Short term improvements have also been undertaken, including more deep wells which have increased the daily production capacity to 987,600 cubic meters.

The Government constructed a 3.3 meter diameter tunnel (extending 2 kilometers) and a pumping station with river outfall structure located south of Rama IV road with the assistance of consultants employed by the Government.

A ten year program was stated in 1964 to construct 25 roads and build an additional two bridges across the river.

During the Second Plan the government budget allocation to the municipalities of Bangkok and Thonburi made the completion of 7 roads possible. One bridge is under construction and expected to be completed in 1973.

Although the government is aware of the importance of City Planning Laws and the importance of having city plans for the various urban areas, government attempts to expedite the passage of a city planning act required further revision after a first presentation to the Parliament. A second presentation to the Parliament is contemplated.

With respect to housing, the NEDB recognizes that the past performance of the government in its public housing program has been negligible compared with the demand for housing (particularly in the high density urban areas like Bangkok and Thonburi). The NEDB's statistical data indicates that the population increase has been at a higher rate than the increase in the number of housing units built during the last ten years. During this period there were 150,000 units of housing built while the population increased by about 1.1 million. Given an average size of family is 5.5 persons the amount of housing shortage during the past 10 years has been approximately 170,000 units or 17,000 units annually.

In the greater Bangkok Plan 2533 prepared by Litchfield, it was indicated that the demand for housing of the Bangkok

metropolitan area would be about 19,000 units annually. Considering either the NEDB's statistical data or the Litchfield conclusions, it is obvious that what has been done in housing has not been enough and that a larger program should be initiated.

Given the rapid economic and social development, and the considerable expansion of the urban population, which has created serious problems in housing, traffic, water supply and other public services, it is a stated policy that the solution of these development problems deserves a high priority during the third plan. It is indicated that both short and long-term measures will be taken to deal with these problems with special priority being given towards the alleviation of the Bangkok metropolitan urban problems.

NEDB's stated long range objectives and policies with respect to housing and urban development are:

A. Public housing construction falls within the responsibility of the government (particularly for low income families). The following obstacles are recognized: There is no accepted government housing policy to make possible the preparation of a long range program. Many agencies are involved in similar housing activities which results in the annual budget allocation being spread inadequately among uncoordinated agencies. There is a lack of accepted guidelines on sources of funds.

B. To undertake these housing problems, it is recommended that the government set up definite policy guidelines for operating agencies that will promote the construction of housing facilities in line with needs of the people according to their income level. Taking into consideration the government's resources, the government shall provide land and town plans and shall promote the investment in construction materials manufacturing through an efficient agency.

Pursuant to the above indicated objectives and general policies the government shall:

1. Formulate a national housing development program covering a period of 30 years (1972-2002) to be revised and updated from time to time as changing circumstances warrant.
2. Emphasize government housing programs for low income families, and assist and promote private enterprise investment in middle income housing projects.
3. Render assistance to the rural population and help prevent people from migrating into towns by expanding activities in the field of land settlement schemes and land allocation projects for the rural population having inadequate farm land.
4. Conduct housing demand surveys at regular intervals so that contemplated projects can be adjusted to meet the actual situation.

5. Coordinate the work of various government agencies by setting up a coordinating committee to settle policy matters, find solutions to problems and assist in making administrative improvements.
6. Assist and promote the establishment of financial institutions to extend housing credit facilities at low rates of interest.
7. Seek additional funds through the issuance of Bonds (or other kind of loans) for the direct expansion of housing programs or guarantee housing loans, both domestic and external.
8. Promote new methods of construction at lower costs by promoting long-term investments in construction and building material industries, assist in research and training in construction material development.
9. Prepare master plans for towns according to housing needs in urban, rural and regional areas of the Kingdom.
10. Give high priority to housing problems in the densely populated urban areas.
11. Set a target to solve the housing shortage problem in the Bangkok metropolitan area within 10 years (under the principle that the annual rate of housing construction shall be 10 units per 1000 population).

12. Enforce quality control on home construction by considering the health, social and environmental aspects of housing programs.
13. Regulate housing policies and implementation of projects in accordance with general town planning principles.
14. Seek capital and promote private investment in housing construction so that expenditures will amount to 4% of Gross National Product within 10 years.
15. Provide and assist in making public land available for housing construction, particularly in the larger urban areas.
16. Amend its laws, rules and regulations so that housing programs can be developed efficiently in accordance with the government's policies and guidelines.

Similar objectives and policies are set forth for the improvement of public utilities, traffic and transportation and town planning.

NEDB's measures, targets and projects for urban development during the Third Plan are as follows:

A. The Bangkok Metropolitan Area

- (1) Town Planning. Passage of a city planning law.

(2) Establishment of an agency for urban renewal and development. This would be the central implementing agency to carry out the provisions of a city plan and would take the form of a public enterprise with authority to acquire land and undertake construction.

Such establishment of a central housing agency instead of the various agencies with similar authorities will be undertaken in stages. The first stage would be the appointment of a housing coordinating committee with its own secretariat assigned with the responsibility of formulating an overall housing plan and coordinating the works of other existing implementing agencies. Future housing construction programs of the various government agencies would have to be coordinated under general principles outlined by the Committee. Housing programs would not be restricted to new construction but would also include redevelopment and urban renewal programs for slums and squatter settlements.

(3) Establishment of a metropolitan central government to include the present provinces: Bangkok, Thonburi, Nontaburi, and Samut Prakan. Agencies covering these four provinces have been established for several public utilities (Metropolitan Electricity Authority, Metropolitan Waterworks Authority).

(4) Establishment of housing finance institutions to assist in home construction, urban renewal and slum clearance programs by seeking sources of finance both domestically and abroad (domestic savings, foreign loans and grants). It is contemplated that promotional privileges will be granted to the private sector to induce investment capital into the field of middle income housing in the metropolitan area.

Similar targets are set forth with respect to building research and development (through the Applied Scientific Research Corporation (ASRCT) water supply, traffic and transportation, drainage and sewage, etc.

Lesser targets are set forth for development outside the Bangkok metropolitan area in city planning, provincial water supply, rural highways financing and administration.

The above information concerning NEDB's recommendations to the government for the third plan was made pursuant to the advice of the Subcommittee on Housing set up by the Executive Committee of the NEDB during 1969 to study and review national housing problems.

The Subcommittee is comprised of prominent members of the Budget Bureau, Department of Public Welfare, Department of Town and Country Planning, Applied Scientific Research

Corporation, NEDB, Bank for Housing and others. The Committee met weekly for a total of 45 meetings.

It is interesting to note the opinions expressed by the Ministry of Interior including the Housing Bureau) representatives and submitted to the Sub-Committee (for housing) for its consideration. These opinions were that the Government should:

1. Undertake welfare housing construction for the low-income earners, since it is an investment with low returns which does not interest the private sector.

2. Promote private investments in housing construction for middle-income earners by providing similar privileges to those for the promotion of industrial investment, i.e., making housing construction an item to be promoted under the Industrial Investment Promotion Act.

3. Cooperate with the private sector to induce private welfare housing construction for middle-income earners by establishing a welfare housing fund with low interest rates for loans or by providing additional capital, temporarily waiving or reducing building rates, etc., which would increase the interest of the private sector and their willingness to invest in this field.

4. Promote the construction materials industry in order to reduce construction costs and capital needs.

5. Give technical assistance to private institutions by making studies on construction standards, materials and methods.

6. Explore the possibilities of acting as guarantor for private loans for housing project, and administering such projects under the following recommended guidelines:

- Rate of interest on loans should not be higher than those of the world market.
- Grace period, or the period before the repayment of capital should not be less than 2 years or less than the period of construction.
- Amortization period should not be less than 10 years.
- Construction of a project must be undertaken in accordance with an approved project design and plans.
- Utilize local labor and construction materials to the extent possible.

7. Lay down a definite policy on housing development to be regarded as an important government development policy to give assurance to the private sector towards inducing private investment in these activities.

Estimated Development Expenditures for Urban Development in
the Third Plan (1972-1976) Budget Allocations

(Million Baht)

Projects	1972	1973	1974	1975	1976	Total
<u>1. Bangkok Metropolitan Area</u>						
1.1 Water Supply	210.0	250.0	250.0	250.0	250.0	1,210.0
1.2 Drainage and Sewerage	30.0	50.0	50.0	100.0	100.0	330.0
1.3 Roads and Traffic	50.0	100.0	100.0	150.0	150.0	550.0
1.4 Bridges						
A. Tha Chang Bridge	30	30	30	20	20	130
B. Sathorn Bridge	-	30	30	30	20	110.0
1.5 Housing	20.0	30.0	32.0	45.0	60.0	187.00
1.6 Town Planning	1.0	1.0	1.0	1.0	1.0	5.0
<u>2. Other Urban Areas</u>						
2.1 Village Water Supply	20.0	20.0	20.0	20.0	20.0	100.0
2.2 Deep Wells	30.0	30.0	35.0	35.0	35.0	165.0
2.3 Provincial Water Supply	150.0	150.0	200.0	200.0	200.0	900.0
2.4 Town Planning	15.0	15.0	30.0	30.0	30.0	120.0
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TOTAL	516.00	706.00	828.00	881.00	886.00	3,807.00

Source: NEDB Draft Third Economic Development Plan

5.3 Public Institutions

5.3.1 Housing Bureau - Department of Public Welfare

The Housing Bureau is a division of the Department of Public Welfare of the Ministry of Interior (see Annex 9.8). Organized in 1943, it is primarily responsible for public welfare housing programs. These programs include the construction of five-story walk-up flats, two-story row housing, two-story duplex units, small and medium sized detached housing, rural land allocation, and (just begun) urban sites and services.

Financing comes from the national budget, from a revolving fund and from commercial banks (at 9% yearly interest). The Housing Bureau designs and administers the programs while other divisions of the Department of Public Welfare provide social work and architectural and engineering services. Most projects are rental; some are hire-purchase schemes. Forty percent of the Housing Bureau's operating expenses are covered by rent collection, which the Bureau does itself. The remaining sixty percent comes from the national budget.

The largest program of the Housing Bureau is the construction of five-story walk-up flats. This is subsidized low rent housing. Since 1963, 3440 units have been built at "Din Dang". Each unit is said to cost 50,000 baht, not including land. Annual budget allowance for "Din Dang" is 15,000,000 baht; 12,000,000 Baht from the national government and 3,000,000 baht from a revolving fund. About 300 units are built per year.

This is far below the demand, as there are already 50,000 applications to the Department of Public Welfare for low-income housing. Rent for these units is 100-120 baht per month, which is just enough for maintenance and services. Selection of occupants is by lottery. Eligibility requires Thai nationality, income range of 500-2500 baht, and Bangkok residency of 6 months. Residents of slum clearance locations have first priority. Victims of rent inflation due to repeal of rent controls also have priority. There is no particular priority given to squatter settlements. There are 80 units per building. Forty-three buildings have been completed to date. Each unit is basically one room, 1.5m x 3.5m, with an entrance gallery and a rear balcony. Electricity, water, Asian toilet, and garbage chute are provided. The ground floor of the structure is open. There are four stories of flats above. Stairwells are located at each end. Construction is of concrete frame and floor slab, with light-weight block infill. They are well maintained. Garbage is collected daily by the Municipality. There is a janitor to each building. However, there are no commercial or community services in the project. Schools are nearby. "Side walk shops" have sprung up adjacent to the project.

The Department of Public Welfare would like to build 10,000 additional "Din Dang" type units at other locations. In fact, an announcement has gone out for bids (see Annex 9.7).

The Department cites high density potential, lower land costs, less maintenance, and 50,000 applications as reasons for emphasizing this type of low-rent housing. However, social work studies by Thammasat University has shown that "Din Dang" housing is preferred by only 1% of Bangkok's squatter residents. (Reference 10.14) This would infer that a better solution might be found for low-income housing. An analysis of this proposal and alternative suggestions for programs directed to indigent families is contained in a report by Dr. David French, U. N. Social Planning Advisor dated July 1971 (Reference 10.16)

Another major activity of the Housing Bureau is its "Hire-Purchase" program. "Hire-Purchase" is a method by which property may be sold through rental payments. A contract is established whereby the buyer purchases a property by making an agreed-upon series of payments to the owner. The owner retains title until the full number of payments is completed, but the buyer has complete use of the property. Therefore, in effect, the property is "Hired". At the time of payment-in-full, the buyer becomes owner. This is a common method of house purchase in Thailand. Purchases through mortgage financing and cash payment are also practices.

The Housing Bureau is conducting a large project of "hire-purchase" housing at Klong Chan on the north-eastern outskirts of Bangkok. Begun in 1966, the project initially served as temporary housing for the 1966 Asian Games.

190 two-story wood row house units were used by the Asian Games and are now rental units at 150 Baht/mo.

Over 500 duplex units have been completed at Kong Chan and sold by "hire-purchase" at 50,000 Baht/unit. There is no down payment, monthly payments are 500 Baht for 15 years. Selection requirements are: Thai nationality, income range of 1500-3000 Baht/mo., non-government employment, proof of not otherwise owning land. Each duplex structure is two stories, enclosing approximately 100 m² of floor area, on a lot of 100 wa² (50 m² and 50 wa² per housing unit). Cost of land and development is 600 Baht/wa² (30,000 Baht/unit). Construction cost is approximately 1000 Baht/m² (50,000 Baht/unit). Subsidy must therefore be on the order of 30,000 Baht/unit.

Also at Klong Chan, 363 medium size detached units have been built for "hire-purchase" at a selling price, including land, of 105,000 Baht. There is a 15% downpayment and 1200 Baht is paid per month for 15 years. Selection is the same as for duplex houses, but income levels are somewhat higher. The house is two stories with enclosed floor area of approximately 65m². Construction cost is 65,000 Baht @ 1000 Baht per m². Developed land cost is 40,000 Baht for 80 wa², or 500 Baht/wa².

Under construction for "hire-purchase" at Klong Chan are 204 small detached houses. They will sell for 90,000 Baht, including land, with a monthly payment of 850 Baht for

15 years. This is a very good plan. Enclosed floor area is about 45 m². Lot size is 50 wa². Construction cost should be about 50,000 Baht; developed land about 40,000 Baht. The house can easily be expanded at a future date. Much work could be done by self-help, reducing construction cost. (See Annex 9.9 for plans and elevations). This design represents the optimum minimal house plan that would be generally acceptable to residents. It can be paid for (with long-term financing) by lower-middle income families (gross family income of 3000 Baht/mo.). The Housing Bureau has about 230 rai¹ of land left at Klong Chan, which could accommodate 1200 small detached units. Land development and construction could begin almost immediately.

In addition to Din Dang and Klong Chan, the Housing Bureau has done projects at Huay Kwang and Tung-Maha-Mek. At Huay Kwang, there are 450 completed two-story duplex units and 1250 two-story row house units. All construction is of wood. The project is subsidized low income rental, with rents for row housing at 50 Baht/mo. and for duplexes at 90 Baht/mo. The Housing Bureau has stopped using this type of project because wooden rental units require too much maintenance. At Tung-Maha-Mek, 56 detached wood houses and 413 detached concrete frame houses were built ten years ago for sale to lower middle income families. There was no down-payment. Monthly payment was 400 Baht for wooden houses and

1. One rai = 400 wa² = 1600m² = 0.4 acre

850 Baht for concrete frame for 15 years.

Concerning future activities of the Housing Bureau, there is a contradiction of statements which makes the situation unclear. This is common in Thailand, especially in the government, and is cause for much delay in program development and implementation. Mr. Prasit, Director of the Housing Bureau, says that upon completion of the project at Klong Chan, the "hire-purchase" program will be discontinued in order to concentrate on highrise, rent-subsidy housing of the "Din Dang" type. Mr. Permchit, Chief Architect of the Housing Division of the Department of Public Welfare (which supplies the Housing Bureau with architectural and engineering services (see Annex 9.8), says that plans are being made for another project at Kong Rangsit, North of Bangkok. Policy statements by Dr. Snoh and Dr. Vinyu of NEDB concerning the third five-year Comprehensive Plan indicate that emphasis in the Plan will be placed upon establishing a large program of urban development, and that the Department of Public Welfare, through its Housing Bureau, will be the vehicle for implementation. The Housing Bureau has the experience and manpower to operate large urban development programs. It is somewhat conservative in management. The broad vision of planning officials at NEDB sees the possibility of using the Housing Bureau organization in a diversified program to include not only highrise flats, but sites and services, detached housing,

and long range financing as well. The Third Comprehensive Plan could well provide the official support needed to direct political and financial resources into this program. This policy is obviously still under debate among Thai officials. Developments should be watched closely if the HIG program is to offer assistance in low cost housing.

The Housing Bureau will undertake a project to develop land in Thonburi and Phra Nakhorn (Bangkok) in a sites and services program to victims of rent inflation due to the repeal of rent controls. The scheme is to allocate 40 wa² of developed land including roads, drainage, sidewalks, electricity, water, shops, and playground space to about 3000 families. Under hire-purchase, each family will pay 150 Baht/mo. for 15 years. Lot development cost will be 24,000 Baht. Some of the land development costs will be absorbed by the construction and sale of 240 shops in the project. It appears also that the investment interest rate will be absorbed by the Department of Public Works. (See Annex 9.11 for detailed estimates). This project might be expanded into a general program of sites and services for squatter settlements such as at Klong Toey.

The faculty of Social Administration of the University of Thammasat has made an excellent survey of the squatter slum of Klong Toey which was published in April 1971. (Reference 10.14).

The Department of Public Welfare is also engaged in a program of self-help settlement in rural areas. A large part of this program is aimed at relocating hill tribes presently along the Laotian border.

5.3.2 Department of Land

The Department of Land of the Ministry of Interior is charged primarily with the survey and registration of land and the maintenance of public domain. A major activity of the department is concerned with the transfer of title of privately owned lands. All land must be registered with the department. When a sale of land occurs in the private sector, both parties to the transaction must apply in persons, either to the central or to regional office of the Department of Land to transfer the title/deed. A fee of 1% of the value of the sale is charged by the Department. The Department maintains a survey of land values which is updated every three years. Application must also be made to the Department of Land by any foreigner wishing to purchase land.

The Land Department cooperates with the Department of Public Welfare in a program of rural land allocation. This includes the relocation of hill tribes indicated above.

The Land Department is responsible for official land surveys. It is also responsible to see that public lands such as roads, canals and grasslands outside municipalities are maintained.

5.3.3 Town and Country Planning

The Office of Town and Country Planning, formerly a division of the Department of Public Works, is now itself a department of the Ministry of Interior. It provides land planning services to all national government agencies. It supplies information and surveys on current and future land use patterns. It is of particular help to the Department of Public Works and to the utilities authorities in planning new roads and infrastructure. A major current activity of the office is the preparation of comprehensive plans for the 120 municipalities of Thailand.

The Office, however, lacks authorization to implement effective planning. It has no control over the private sector; nor are public agencies bound to observe its recommendations. There is no legislation controlling land use or ownership. Government expropriation of private land is severely limited. None of the 120 municipal plans, including the metropolitan plan for Bangkok-Thonburi have been accepted officially. In fact, the Bangkok Municipality has its own metropolitan plan (also not officially accepted) which it follows. This often

contradicts the efforts of Town and Country Planning. Obviously, planning will remain chaotic until the Office is promoted from its present advisory role to a position of power through which it might take action.

5.3.4 The Department of Technical and Economic Cooperation (DTEC) HISTORY:

Subsequent to the signing of the Economic and Technical Cooperation Agreement between the Governments of Thailand and the United States of America on September 19, 1950, the Thai Government set up a working group known as the Thai Technical and Economic Committee (TTEC) to work with the U. S. Special Technical and Economic Mission to Thailand as the central administrative unit responsible for the United States foreign aid program.

As assistance from the United States and other sources increased, the Thai Government decided in 1954 to coordinate foreign aid programs under a single organization and subsequently transferred the duties and responsibilities of various ad hoc committees negotiating aid programs to TTEC.

In December 1959 the Government placed TTEC under the newly-founded Office of the National Economic Development Board (NEDB) as the Division of Technical and Economic Cooperation. In 1962 the division was elevated to the status of a Bureau with various specialized divisions under its supervision. When

the Ministry of National Development was established in 1963, TTEC was transferred to the new ministry as the Department of Technical and Economic Cooperation (DTEC).

FUNCTIONS:

The Department is charged with the responsibility to act as the agency for liaison on foreign aid affairs between foreign government and international agencies and the Government of Thailand. It is directed to achieve this purpose by carrying out the following functions:

- a) prepares or carries out studies and considers requests for foreign aid by various government agencies, and accepts offers of economic and technical aid from foreign governments and international agencies.
- b) secures coordination between foreign agencies and the Thai Government by proposing measures to facilitate concerted actions relating to assistance and cooperation, and by maintaining and strengthening the economic relations between Thailand and foreign or international aid agencies.
- c) carries out procurement of materials and other accessories required by projects of foreign assistance or cooperation.
- d) controls the disbursement of funds in accordance with projects of foreign assistance or cooperation, both foreign aid or grants and Thai Government counterpart funds.

ORGANIZATION:

DTEC is an executive office, responsible to the Ministry of National Development in administrative matters, and carries out its duties under policy guidelines and instructions by a committee known as the Committee for the Examination and Administration of Foreign Economic and Technical Assistance and Cooperation (or more briefly, the Technical and Economic Cooperation Committee).

As the volume of foreign assistance has increased, the Government has placed increasing emphasis on coordination to insure that the best use is made of the assistance received and that it can effectively contribute to the fulfillment of the National Economic and Social Development Plan.

5.3.5 The Bank of Thailand

The Bank of Thailand was established in December 1942, as the central bank of the country. The Bank received its initial capital of 20 million baht from the government; it also took over the net assets of the Thai National Banking Bureau which was set up in 1939 as a forerunner of the establishment of a central bank. The management of the Bank is vested in the Board of Directors comprising 10 members, with the Governor and the Deputy Governor as Chairman and Deputy Chairman, respectively. The Governor and the Deputy Governor are appointed by the Crown on the advice of the Cabinet, the

other members of the Board are appointed by the Cabinet on the advice of the Minister of Finance.

The Bank's main functions are to act as: (1) the note-issuing authority; (2) banker to the Government and other banks; and (3) fiscal agent of the Government in its dealings with international monetary organizations. The Bank has also been authorized by the Ministry of Finance to manage the public debt, to control foreign exchange and to supervise commercial banks.

The relationship of the Bank of Thailand to the Housing Guaranty Program will come into play pursuant to its approval of specific projects with respect to payment in the United States in dollars of the principal and interest (at the times and in the amounts of) on notes or bonds issued by the Borrower in connection with borrowings of the U. S. dollar investment, of the Guaranty Fee payable to A.I.D. and of the remittance of any requirements for a reserve fund to be held in the United States.

In addition, the Bank of Thailand must approve the issuance of any mortgage guaranty provided by an administrator. For example, in the Soi on Nuj project, the Bank of Thailand ruled that the Bangkok Bank participation in the project as administrator and as guarantor for repayment of the mortgage loans did not exceed the scope of the commercial banking laws of Thailand. Secondly, the Bank of Thailand, through

its exchange control office approved the Bangkok Banks future remissions to the United States of principle, interest, guaranty fee and payments to the reserve fund. The Exchange Control Office (with the exception of holding back dollars for payment of brokerage and legal fees connected with the U. S. investment) required conversion of U. S. dollars to Baht and remission to an approved bank in Thailand at the time of each disbursement along with a report of each transaction being made to the Bank of Thailand.

Projects where an agency of the RTG is borrower will require similar approvals. The major difference will undoubtedly be the disbursement and repayment of the U. S. investment, A.I.D. fee and any reserve fund requirements directly through the Bank of Thailand or its designated depository.

5.3.6 The Government Savings Bank

The Government Savings Bank was established in 1947 by the Government Savings Bank Act. B.E. 2489 (1946). It took over the assets and functions of the Postal Savings Bank system which had been in existence since 1913. In addition to performing the functions of a regular savings institution, the bank also has a banking department which accepts current deposits, makes loans to government enterprises, rediscounts bills presented by the commercial banks, and sells domestic travellers' checks. The bank transacts a limited amount of

life insurance business, and sells savings bonds and savings certificates. The latter have been an important means of mobilizing small savings, as they carry a lottery feature.

At the end of 1970 there were 341 government savings bank branches throughout the country. Total deposits during 1970 increased by 420.2 million baht or 7.7 percent as against 9.2 and 13.4 percent for the same period in 1969 and 1968, respectively. Total deposits are in excess of 6 billion baht (\$300 million). It has in excess of 6-1/2 million depositors. The branches merely collect savings, while loans are made only by the head office. The Government Savings Bank is managed by a board of directors, consisting of thirteen members, appointed by the Minister of Finance.

Deposits and sales of bonds and savings certificates are the principal sources of funds of the bank. The interest rates for current deposits of the banking department are 1/2, 3 and 4 percent per annum depending on prior agreement on method of withdrawal reached between the customers and the bank. There are two types of savings deposits. "At call" deposits carry an interest of 2 percent per annum on individual accounts up to a maximum of 100,000 baht^{1./} Fixed deposits carry an interest of 5 percent per annum on individual accounts up to a maximum of 500,000 baht. Most of the Government Savings Bank funds are invested in long-term government bonds

1./ The Government Savings Bank has proposed increases in rates paid to depositors. Upon RTG approval the following rates would become effective on January 1, 1972: 3-1/2% p.a. on current savings; 6% p.a. on 6 month fixed deposits and 7% p.a. on one year fixed deposits.

in compliance with government policy.

With respect to housing, some loans for housing purposes have been granted to employees of the bank and to some patrons of the bank, the total of which amounts to only about 25 million baht (\$1.25 million). The Government Savings Bank instituted a deposit plan for housing about two years ago. To summarize, the plan has the following provisions:

- a) A depositor can open a savings deposit account for housing to run for a period of three, four or five years.
- b) Minimum monthly savings must be at least 100 baht on which the bank will pay interest - 3 percent per annum.
- c) Pursuant to such accounts the bank will loan for the following housing purposes:
 1. To purchase a house (including land);
 2. To buy land and construct a house;
 3. To buy land on which the depositor's house already has been built;
 4. To construct a house on land already owned by the depositor or to improve an existing house.
- d) The loan given to the borrower may not exceed 65 percent of the value of the security pledged, shall not exceed two times the savings deposit (including interest accrued) at the date of borrowing, and shall not exceed 200,000 baht.

- e) The borrower must mortgage his land and house (or another plot of land belonging to him) as a security for the loan.
- f) The bank charges interest at 7 percent per annum on the loan.
- g) The maximum term of loan is 15 years.
- h) This plan is presently restricted to the Metropolitan Area of Bangkok (provinces of Bangkok, Thonburi, Samud Prakarn and Nonthaburi).

Since the minimum period for saving under the plan is three years, there will not be any loans under this plan for at least another year. By May of this year (1971) the total amount deposited under this plan amounted to almost 3 million baht by 403 depositors.

5.3.7 Bank for Housing

The Bank for Housing was created in 1953 with a grant from the government of 20,000,000 baht. Its original purpose was to develop land plots and build houses on them for sale by "hire-purchase" to persons who did not already own land.

Between 1953 and 1955, the bank developed and sold three projects with a total of 453 land plots and houses. Selling price of the developed land ranged upward from 380 baht/wa², depending upon the site location. Average cost of house and land (in 1955) was 56,000 baht. The Bank for Housing financed

the buyer at 15-20 terms.

Unfortunately, the Bank for Housing was given no further appropriations by the government. It was forced to cut back and set up a revolving fund for the development and sale of urbanized land only. Since 1962, the bank has undertaken six projects with a total of 2944 plots. Selling price of the developed land has ranged from 370 baht/wa² to 1,600 baht/wa² depending upon location. Repayment is from five to seven years.

The Bank for Housing has three remaining sites left in Bangkok. Because of the recent market trend away from selling land without a house, the bank is thinking of reviving its original program of developing land and building houses on one of these sites. It plans to construct 250 one bedroom houses on 50 wa² lots for a total cost of 65,000 baht/unit. The bank has a similar proposal for the City of Chiang Mai in the North of Thailand.

The bank augments its resources by drawing upon savings deposited in the bank toward land purchase. It sub-contracts all actual construction and borrows architects and engineers from the office of Town and Country Planning. A suggestion has been made by the NEDB that the Bank for Housing might be used as a basis for starting a homeowners mortgage insurance program. Unfortunately, the bank's charter makes no provision

for this and additional legislation would be necessary in order to utilize the Bank for this purpose.

A chart describing the RTG organization in relation to housing is attached to this report. (See Annex 9.12)

5.3.8 Bangkok Municipality

Within its jurisdiction, the Bangkok Municipality maintains three primary operations in relation to housing activity. These operations are: urban planning and building standards, road and drainage construction and maintenance, and slum clearance and urban renewal projects.

The Building Control Division is responsible for insuring compliance with the municipal building code and the city's master plan. It authorizes construction projects and issues building permits. It inspects construction. It also provides plans and specifications for typical low cost homes as a service to those who cannot afford an architect.

The City Planning Division is primarily an information service on growth and land use trends. It has no authority to impose planning regulations. It participates in the design of slum clearance and urban renewal projects.

The Bureau of Public Works is responsible for the construction and maintenance of roads, sidewalks and drainage systems. It inspects public and private construction projects for compliance with plumbing and sanitation regulations of

the building code. It provides engineering and architectural services.

The Office of Slum Clearance, Urban Renewal and Housing directs the planning and construction of housing projects of the Municipality. It cooperates with the Office of City Planning and the Ministry of Interior. It has developed four programs.

The first program is slum clearance. This involves relocation of slum inhabitants in order to use the site for construction of public buildings. Two projects have been undertaken. In the first project, (1961), temporary wood housing was built on a site outside of Bangkok. Inhabitants of a downtown site proposed for government office buildings were relocated to the temporary housing.

This was eventually abandoned by the relocated slum dwellers because it was too far outside Bangkok. Another project was tried in 1963 for relocating residents on a proposed library site. Residents were simply "compensated" for property and moving expenses. No effort has been made to provide housing. However, slum clearance residents have first priority for Din Dang vacancies.

The Urban Renewal Program began in 1965. A site at Ban Kai slum in southeast Bangkok was selected. Because

it is Crown Property, the site can be cleared without permission of residents (private land generally cannot be expropriated). This is an 8,000,000 baht project to do 800 apartments, some detached self-help housing, some rehabilitation of existing stock, and improvement of infrastructure. 160 apartment units have been completed. UNICEF provided technical assistance in the construction of 40 self-help housing units.

The self-help units are surprisingly large and well built to have been done by the original inhabitants of the slum area. It was discovered that each unit received a fairly large loan from the Municipality (60,000 baht for materials along). It was also learned that most of the units began with self-help but were completed by professional builders.

Adjacent to the "self-help" project is another project of contracted houses costing 150,000 baht. It is probable that most of these houses are not owned by original Bon Kai residents.

Also in Bon Kai is a technical-trade training center established by the Municipality. UNICEF supplied the tools and equipment. Students 15-18 years old are learning the trades of masonry, carpentry, concrete work, plumbing, and electrical work.

The Cleanliness Program began in 1960. The Cleanliness Act of 1960 allows the Municipality to relocate inhabitants

of overcrowded areas to lower densities and hopefully improve sanitary conditions. 120 units of "temporary" housing have been built. Residents are moved there, supposedly for one year maximum, until they can find other housing. Unfortunately, most residents simply remain in the temporary housing and no real effort is made by the Municipality to get them to move on to something else.

The fourth program is Land Subdivision. This provides developed lots primarily for Municipality employees. Lots are purchased by installment and the buyers build their own homes.

In summary, the Municipality has several programs, but all are on a small scale. It has little authority to enforce planning or building relocations. Inspection and maintenance are not strongly emphasized.

5.3.9 The Crown Property Bureau

Crown Property owns and manages the holdings of the Royal Family. They own 20 to 25% of the land of the City of Bangkok and a substantial amount of property in other parts of the country.

Property owned by the Royal Family prior to establishment of a constitutional government in 1932 can not be sold. These properties are usually improved with commercial buildings, shops, hotels, stores, etc., and include the Royal Sports Racing Club, Turf Club and others. New properties are bought

and sold. Activities include land purchases for development and sale to individual owners. Income from operations is used for the personal needs and maintenance of the Royal Family and for investment.

The operation is similar to the Duchy of Lancaster of England. The Bureau was part of the Royal Household before it became an independent corporate utility in 1948. The Crown Property Bureau constitutes the property of the King and the annual net income from it is used for Royal Household expenses, entertainment for private and state visitors, and for donations for charitable purposes.

5.3.10 The Applied Scientific Research Corporation of Thailand

The ASRCT through its National Building Research and Development Center, is conducting a wide program of research for the building industry. This program includes analysis of long and short range construction policies, building techniques and economics, programing and coordination, design and development of buildings and building systems, and documentation. Plans are being made to begin materials and equipment testing in the near future.

The ASRCT is actively supporting the development of a strong and coordinated national housing policy. Stating that existing housing institutions have fragmented housing construction efforts through interagency rivalries, the ASRCT

is also working on the very difficult problem of introducing modular standardization in construction practice. This could reduce much material wastage, but it would be very difficult to implement because of the high proportion of handcrafting and improvisation on the construction site. It is also quite difficult to enforce specifications requirements.

5.3.11 Thammasat University

The Department of Social Work of Thammasat University is deeply involved in looking for solutions to the problems of squatter settlements in Bangkok-Thonburi. It is particularly concerned with the largest of these settlements located at the port area of Klong Toey. Using social work students, the university has made a detailed survey of conditions in Klong Toey (Reference 10.14). As a result of these studies, it has been proposed to the NEDB that two programs be undertaken to improve the situation. The University suggests a long-range program of sites and services to relocate most the 25,000 inhabitants. It also proposes a short-term program of urban community development to deal with some of the immediate problems of Klong Toey--health and educational improvements. The University would provide social work services as part of its curriculum. This expertise coordinated with the Department of Public Welfare, could be drawn upon in establishing a HG sites and services program.

5.3.12 United Nations Advisor

Mr. David French has just completed an assignment as U.N. Social Development Planning advisor for the NEDB. Mr. French has worked closely with the ASRCT and Thammasat University in Seeking solutions to Bangkok's housing shortage and squatter settlement problems.

Mr. French is opposed to the "Din Dang" type high rise solution for low income housing shortages that is advocated by the Department of Public Welfare. Citing the Thammasat University Klong Toey survey, he states that only 1% of the squatters prefer high rise housing. He suggests that a sites and services program would be far more effective, in that it would respond to the squatters' desire for individual houses and take advantage of their demonstrated ability to build adequate shelter for themselves when expensive land costs are eliminated.

Working with the ASRCT, Mr. French strongly supports the proposal to the NEDB for establishing a public housing authority, similar to the successful metropolitan electric authority, which would transcend existing government agencies involved in housing. (See Reference 10.17). The public authority would encompass all the activities of the various overlapping and often competitive agencies, introducing a coordination of action and funds that is now nearly impossible because of interagency rivalry.

6. PRIVATE SECTOR

The private sector of Thailand is well qualified to carry out a substantial program in residential construction. The survey team met with a good number of builder-developers and found them to be capable and experienced people well qualified as entrepreneurs, developers and builders to proceed with a substantial residential building program as soon as adequate homeowner financing is available.

In the absence of this financing, these builders have been busily engaged in the construction of office buildings, hotels, luxury apartment houses and limited number of high price housing which have been feasible and for which financing was made available through the private sector.

These companies have developed building organizations, staffed with architects, engineers, technical and administrative personnel which can carry out any volume of residential construction which is undertaken by their firm. Many of these builder-developers told us that they would be happy to participate in public and/or private programs when they were feasible. They further indicated that with the establishment of sources/^{of} financing which permitted large-scale operations, they could introduce building techniques which would result in the substantial lowering of building costs and substantial savings to homeowners. They stated that since adequate financing was not available for homeowners from commercial

banking sources, they have had to take on the financing burden for which they are ill suited at substantial costs to homeowners. The assumption by others of the financial risk would enable them to direct their capital to their own business of building which would result in considerable savings to the homeowner.

Many builders have done a considerable amount of work in land development and are now building only a small number of houses a year on these tracts. The introduction of the recommended program would open up a home buyers market which would enable them to proceed with large scale construction of lower and lower middle class houses without undue delay. Many indicated to the team that they were prepared to do so.

A cross sample of the organizations in the private sector with whom we met follows:

(a) The Amornphan Co., Ltd.

The Amornphan Company is developing housing projects for middle and upper-income families and constructs custom built houses.

(b) Union Housing Estate Co., Ltd.

Union Housing originally developed and sold subdivided land. It is now moving into home construction as well.

(c) Bangkok House of Commerce, Ltd.

The Company is a builder-developer currently developing land on the eastern outskirts of Bangkok.

(d) National Housing Finance Co., Ltd. and Associated Industrial Development Co., Ltd.

These companies having the same ownership are presently managing and constructing the Bangkok Cooperative Housing Societies 1200 home project.

(e) Intercontinental Housing Thailand, Ltd.

Intercontinental constructed the Soi on Nuj guaranty project which is illustrative of A.I.D.'s initial housing guaranty for Thailand. The administrator and mortgage guarantor for this project is the Bangkok Bank, Ltd.

(f) DEC Consultants Co., Ltd.

DEC Consultants have formulated the Nava Nakorn Plan to construct a self-contained model town (including an industrial estate) for low and middle-income wage earners with the participation of the Commonwealth Development Corporation (CDC).

(g) Construction Materials Marketing Co., Ltd. (CMMC)

The CMMC is responsible for all marketing, distribution, imports, exports, research and product development for its affiliate group of construction material companies.

(h) The Bangkok Cooperative Housing Society, Ltd.

The primary objectives of the Society are to acquire and urbanize land, prepare plans and specifications and construct houses for its members who deposit their savings in the Society according to a prearranged plan for mortgage financing or hire-purchase.

7. TECHNICAL FEASIBILITY

7.1 Building Construction Industry

The construction industry in Thailand is very well developed due to the building boom of the last few years. The decline in construction described above has left the industry with skilled labor, experienced entrepreneurs and considerable capacity.

There are 469 general contractors registered in Bangkok in 1971. There are over 4,600 registered civil, electrical, mechanical and soil engineers. The 771 registered architects fall into three categories - those capable of small projects and those who are licensed. Most architects are employed by industry or government agencies and have only a part-time private practice. There are 30 full-time architects in Bangkok. There are 53 architectural and engineering consulting firms. Architects are represented by the "Association of Siamese Architects". Engineers have organized the "Engineering Institute of Thailand". Builders are grouped in the "Contractors Association of Thailand".

7.2 Availability of Land for Housing

The availability of land suitable for the development of housing projects is one of the most difficult problems of the Bangkok-Thonburi Metropolitan region. Due to lack of

controls, land prices within the metropolitan area have become grossly inflated. Land in central Bangkok and Thonburi is currently selling from 10,000-20,000 Baht/wa² (\$500-\$1,000 per 4m²). Raw land on the metropolitan perimeter, approximately 10 km from the center of town, is still expensive; 500-1000 Baht/wa² (\$25-\$50/4m²). To make the situation worse, neither municipal nor national governments are allowed to expropriate land for housing development. All land must be bought on the open market and this further contributes to speculative inflation.

At present, there are no zoning regulations, nor has there been any land planning legislation. There is no overall accepted government policy on land planning or housing development. The Sub-committee on Housing of the NEDB is making proposals for national legislation to establish a housing policy and land use standards and controls. There are two proposals for a metropolitan plan of Bangkok-Thonburi waiting for approval. Unfortunately, effective action is being blocked by political rivalry and individual private interests.

The land itself presents problems. Bangkok-Thonburi is built on the delta of the Chao Phya River. The terrain is absolutely flat and averages only one meter above mean sea level. The water table is just beneath the soil surface, posing serious problems of drainage and flooding. In addition, soil conditions are extremely difficult. The Boston

engineering firm of Camp, Dresser and McKee made a soil study in 1968 for a sewer, drainage and flood control master plan for Bangkok-Thonburi. They describe a soft plastic clay (known as "Bangkok Clay") to a depth of 14 meters below the ground surface. A somewhat stiffer clay beneath becomes increasingly mixed with sand and fine gravel to a depth of 300 meters. To the limit of the deepest bore made, no bedrock was found. However, granite was reported at a depth of 365 meters at another bore just north of Bangkok.

The low bearing capacity of the soil requires that all structures rest on piles or piers. Roads and building sites must be raised by landfill at least one meter. Water is a constant problem in any kind of excavation.

7.3 Methods of Construction

House construction is basically of wood, concrete, or a combination of both. Housing types fall into variations of several categories; high-rise apartments, "shop-house" blocks, multiple low-rise dwellings and single detached houses.

High-rise apartments range in size from fairly luxurious to quite minimal. All are built of reinforced concrete frame and floor slab with light brick, concrete block, hollow clay tile or wood in-fill for walls and partitions. These heavy structures require footings founded on extremely deep and

expensive piers because of the plastic "Bangkok Clay." Most plans are of the "gallery" type to allow cross ventilation. Kitchens are usually located outside on the private rear balcony to minimize problems of heat and odors generated by cooking. The Department of Public Welfare's "Din-Dang" housing is of this type. "Shop-houses" are three-story concrete frame structures similar to row house design. Each unit is a three story slice, deep and narrow, with the ground floor serving as a shop and the upper floors as storage and living quarters for the shop-keeper and his family. Vertical circulation is within each unit. Construction is similar to high-rise blocks. An entire block of shop-house units will be built at once. This is a popular form of construction. It allows fairly high densities, which reduces land cost, and it is relatively inexpensive to build as many units are done at once. It is very lucrative to builders and quite convenient for the inhabitants. However, it requires a large "Key Fee" - initial payment - by the resident. The current recession has resulted in many shop-house vacancies. Multiple low-rise dwellings are not particularly popular with the residents, but since they conserve land, they are often build as employee housing by large companies or institutions. These are mostly duplex units, but some are row housing. Construction is usually wood frame, set on wood or concrete piles with the living quarters raised one story above grade to escape moisture problems and allow air circulation. The

ground level is normally left open and used for storage and cooking, although it may be enclosed at a later date.

The most desired type of house construction is the single detached unit. Due to inflated land costs, these units are relatively expensive. Construction costs could be fairly reasonable if wood framing were used and imported materials avoided. Unfortunately, the trend is toward a greater use of concrete frame. Sizes include a minimum house of 40m² of enclosed space on a lot of 50 wa² at a cost of 80,000 - 100,000 Baht including land; a medium-priced house of 80-100 m² on a lot of 80-100 wa² at 100,000-300,000 Baht, and luxury houses on a large lots exceeding 150 wa² and 300,000 Baht.

As previously noted, all structures must be founded on piles. Wood or reinforced concrete piles in groups of three are sunk at each column location. A spread-footing, either pre-cast or poured concrete, is placed on top of the pile cluster and a reinforced concrete bond beam is poured to connect the footings. A two-story concrete or hardwood frame is built over the footings. Floor and roof structure is normally hardwood, even with concrete framing. Joists are widely spaced (50 cm) and no attempt is made to control live-load deflections. Roofing, originally thatch and clay tile, is now generally corrugated asbestos-cement. Corrugated iron is sometimes used, but results in much solar heating. Walls may be filled in with either small "Thai Brick", cement

block, hollow clay tile or wood panelling. Windows are large for air circulation. Screens and shutters are common, but glazing is not. Ceiling and interior wall panelling may be softwood, plywood, particle board or flat asbestos cement sheet.

The primary enclosed living space is elevated one-story. The ground floor is usually left open for air circulation, but it may become enclosed at a later date. Expensive houses with air-conditioning are often built completely enclosed on both levels. Kitchens in most all cases are separated from the main structure to avoid heat and cooking odors. Bathrooms are normally on the ground level. As there is no sewerage system, bathroom fixtures drain into "klongs" (canals), storm drains or leaching pits. Special care must be taken in selecting bathroom fixtures. The Thai do not use bath tubs or showers. They bathe by pouring water over themselves. Bathroom floors must be designed to drain the runoff. To prevent leak damage, they are best located on the ground floor. Bathrooms should be well ventilated.

Climate is a very critical factor in house design in Thailand. Except for luxury homes equipped with air-conditioning, houses must be designed to account for tropical heat and humidity. The primary factors are air circulation and sunshine. Air circulation is needed to control humidity. Good air

circulation requires large windows and door openings, cross ventilation, and unobstructed air space beneath the floor. Sunshine is to be avoided, especially in enclosed spaces, or temperatures will rise.

Prevailing winds in Thailand are northerly and southerly. The worst sun angles are from east and west. The coolest houses in Thailand are oriented with the long axis placed east-west to minimize wall exposure to low sun angles. The structure is elevated with the space beneath left clear for breezes. Large windows are located on the north, east and west. For air circulation, small high windows are placed beneath the eaves on the south, east, and west for cross-ventilation. A large roof overhang on east and west protects windows on those walls from lower sun angles. Spaces beneath the roof are well ventilated to prevent solar heating of trapped air. All materials are porous for rapid night cooling. Shutters and screens are used instead of glass windows.

Single houses are generally built to order, but on a lot within a project development. Usually land and house are sold together, with the developer building the house. Sometimes the buyer buys only the lot and builds his own house. Sometimes the developer offers only a few typical plans from which to build. All house plans are designed by architects operating normally on a part-time piecework basis

as a supplement to regular income.

Quite a lot of experimentation is underway among builders in prefabrication techniques. At this point, it appears that hand-crafted construction is still cheaper. One area that could be greatly improved, with a probable saving in construction costs, is modular standardization of building components. There are no standard framing sizes, which means that each component must be individually made. This interferes with possible factory production of doors, windows, etc. and causes much material wastage in cutting. The ASRCT is conducting research and expending much effort in promoting a trend toward modular standardization.

All heavy equipment used in construction must be imported. Trucks come from Japan. Most earth moving equipment is made in Europe. Actually, house building in Thailand uses very little heavy equipment. A bulldozer might be used in land fill, but quite often fill brought in by trucks is spread by hand. Small shovel tractors are used in excavation, but again, much of this is done by hand. No cranes are used, except for small pulley-lifts. Concrete may be mixed in a small gasoline powered mixer. Mortar is usually mixed by hand.

7.4 Availability of Construction Materials

Nearly all materials necessary for house construction in Thailand are locally available. That which is imported (mainly electrical equipment, sanitary porcelain, appliances,

and heavy machinery) is readily available through local wholesalers.

A listing of the major materials used in the construction industry of Thailand with some details of availability and saving is attached as Annex 9.10.

7.5 Availability of Construction Labor

Common labor is cheap and readily available. Skilled labor can be expensive, is in high demand, and is not readily available. Management is not very sophisticated.

A large proportion of common labor is female. Female labor costs about 15-25 Baht/day, while male labor is 20-30 Baht/day. Women do all sorts of work on the construction site, with the exception of lifting very heavy loads. Common labor is generally temporarily picked up or laid off according to work load. Speed and efficiency are not by any means great. Common labor, under supervision, will do carpentry, formwork, steel work, concrete mixing and pouring, masonry work, plastering, roofing, tile-laying, land fill and painting. Supervision, however, must be close to insure proper work.

Skilled workers such as carpenters, masons, electricians, plumbers generally supervise gangs of common laborers doing the work in their trade. As they are in high demand, they are generally permanent employees of the builders or sub-contractors. Small builders, who cannot afford to maintain a large permanent staff of skilled workers, sub-contract for

the skilled trades (labor only - materials are supplied by the builder). Skilled workers make 40-60 Baht/day.

Supervision usually consists of one or two foremen, perhaps a part-time architect or engineer and the builder himself. Builders are mostly small organizations. Some are family-owned, some are groups of investors providing capital. A manager and perhaps an assistant (one of which may be a woman) handle sales and oversee construction activity. The architect or engineer does design and occasional inspection on a piecework basis. The foremen supervise and coordinate the skilled tradesmen and common labor on the building site. In public housing projects, the agency's staff architect or engineer oversees the contractors operations and acts as liaison to Department heads who maneuver the politics of decision-making. Labor unions were abolished by law in 1956.

A number of comprehensive labor acts have been passed but they are not actually enforced unless flagrant violations occur or it is politically expedient to be strict. Seven day work weeks are more the rule than not. Health care is rare. Employment of women and children is high. Extra overtime pay may or may not be granted.

7.6 Water, Sewage, Electricity

The Water Supply System

The water supply system of metropolitan Bangkok is somewhat confused. The Metropolitan Water Works Authority

was organized in 1967 to consolidate four separate municipal water systems in Bangkok, Thonburi, Samut-Prakan and Nonthaburi. The Bangkok system was begun in 1914. Thonburi's system did not become significant until 1955. Samut-Prakan and Nonthaburi built systems in 1958 and 1960. All four systems are still separate operations; the Metropolitan Water Works Authority has combined jurisdiction. Water for the systems comes mostly from the Chao Phya River, with ground water wells supplementing the supply. Rapid increase in demand for water from the recent growth of Bangkok-Thonburi has lead to supply shortages and negative pressure in the system. Water is sucked into buildings by pumps. This of course causes contamination and breakage in the system. Metering of water use is practically non-existent. Like taxicabs, meters have been installed, but not maintained. Incomprehensible methods are used to estimate customer use and charges. There is much wastage through broken lines and illegal taps which is not checked by the Authority. It is estimated by Camp, Dresser and McKee in their water supply master plan study that only 50% of metropolitan water use is paid for.

In the suburbs, there is no public water supply. Housing project developers drill their own wells and build elevated storage tanks (sub-contracted at a cost of about 30,000 Baht per well and 700,000 Baht per water tower). This is passed on to the house buyer as part of the selling price and as a

monthly water bill. Private wells are frequently contaminated. High salinity content is common. Water is not generally used for drinking. Drinking water is collected in large clay jars from rainfall draining off roofs through downspouts.

Sewage System

A sewage system is non-existent. Storm drains exist in Bangkok-Thonburi and they are used to carry off waste water from kitchens, baths, and laundries. Unfortunately, this double use of storm drains often leads to clogging. Since the ground is flat and the water table is high, there is not enough slope in the drains to provide scouring of the pipe or to prevent silting. This naturally leads to back-ups and flooding, especially during heavy rains. The drainage system empties untreated effluent into "klongs" (canals) and the Chao Phya River. Toilet wastes empty into cesspools or "septic tanks." The so-called septic tanks, unfortunately, are not connected to leaching fields so they are in reality also cesspools. Cesspools don't leach either because of the impermeability of "Bangkok Clay," and the high water table. Cesspools may be drained by the municipality for a fee but more often, when they become filled, they are simply covered over and new ones dug nearby. Cesspool overflow pipes also empty into the drainage system, contributing to clogging. A double-use stormdrain/sewer system has been planned for Bangkok-Thonburi and some construction is underway.

The Supply of Electricity

The supply of electricity, in contrast, is very good and very well organized. In Bangkok-Thonburi and its suburbs, electricity is supplied by the Metropolitan Electricity Authority which gets its supply from the Bhumipol Hydro-electric dam and the North Bangkok Thermal-Electric Plant. Outlying electricity is supplied by the provincial electricity authority from a series of hydro-electric, thermal and diesel generating plants. The MEA completely rebuilt its distribution system during the years 1959-66. It supplies power at 220-240 volts and 50 cycles. Rates charged are 0.65 Baht/KW-H. All lines are metered. Electrical installation charges are about 1,000 Baht per housing unit.

7.7 Construction Costs

Following is a summary list of approximate wages in the construction industry. These vary according to location and need. Work days and work weeks are usually long, as the workers desire added income from overtime. Overtime rates vary from normal pay to twice pay depending upon needs and skills. Permanent employees usually receive a new years's bonus of 1/12 annual pay.

<u>Labor Rates</u>	Baht Per Hour	
	<u>Bangkok</u>	<u>Upcountry</u>
Mason	7-10	9-15
Carpenter	6-8	8-10
Electrician	7-10	9-15
Plumber	5-7	6-9
Painter	4-6	6-8
Concrete Worker	4-6	4-6
Equipment Operator	4-6	6-8
Common Labor	2-3	1-2

Skilled labor costs more upcountry because it is difficult to attract qualified workers away from Bangkok. Common labor is cheaper upcountry because the supply is plentiful and the cost of living is lower. (See Annex 9.6 for further wage rates and installation estimates).

The choice of materials is an extremely important factor in labor and overall costs. Those which can be handcrafted are less expensive. All imported items and many manufactured items made in Thailand, will carry a very large import tax and entrepreneurial charge. One way that architects supplement their income is by specifying products from which they will receive a manufacturer's kickback. Both the kickback and import taxes can be avoided if handcrafting by labor on the site is used to the utmost. Thus, wood is cheaper than concrete, traditional building less expensive than prefabrication, hand-made windows and doors less than factory-made, Asian bath fixtures less expensive than Western, etc.

Architects working for the government and for private organizations make a monthly salary of about 2,000-2,500 Baht. Engineers receive about 3,000-4,000 Baht/mo. Draftsmen and technicians gain about 1,000-1,500 Baht/mo. All supplement their incomes by "moonlighting." Architects do part-time design for private developers on a piecework basis. They charge about 7% of the construction cost of the building

designed. Structural engineers are sub-contracted by the architect at about 1% of the construction cost. Both receive manufacturers' kickbacks from specifying certain products in the design.

Other costs charged to the selling prices of homes are: cost of land, paving and drainage for roads (included in lot cost); water supply (well digging and storage tank); special facilities, such as swimming pool, cinema, recreation area; taxes paid by the developer during construction. The cost of developing land by itself is somewhat difficult to determine, as land is nearly always sold with a building and urbanization costs tend often to be included in construction costs. Urbanization costs have been quoted at 200-300 Baht/wa². This includes land fill, roads, water, electricity and drainage. Forty percent of the raw land is used up in circulation and common space. Therefore, raw land that costs 300-400 Baht/wa² nearly triples in cost with development, not including profits. A sites and services program would have to estimate developed land cost at about 900-1,200 Baht/wa². Developed land costs on private projects including profit currently costs, depending upon location, about 1,000-1,500 Baht/wa².

7.8 Interim Financing

In the case of public agencies such as the Department of Public Welfare or the Bangkok Municipality, interim financing funds come from the budget, from existing carryover funds,

or from commercial banks at 9-12% interest per year. In the private sector, most financing is done from capital resources of the developer itself. In rare cases, however, construction funds may be financed through a commercial bank at 12-18% interest, although this is often too expensive and requires much negotiation. Land acquisition and development in the private sector is totally financed by company capital. Large down payments by homeowners before construction begins and short-term loans reduce the need for interim financing by the builder. Cooperative societies are able to raise the construction capital from within their ranks.

A major difficulty affecting interim financing is that mortgage financing is not available. Developers are usually obligated to finance the buyer as well as the construction. This limits the turnover rate and building capacity of the developer. It also breeds distrust between developer and buyer over repayment and title transfer. The risks and costs of financing the buyer results in higher selling prices by the builder, who is not in a position to be a banker as well. Availability of mortgage financing from established impartial institutions would eliminate the risk and reduce the cost of the house to the homeowner substantially.

7.9 Local Regulations and Services

Within the municipality of Bangkok-Thonburi, applications by the private sector for a building permit must be presented to the building control division of the municipality. The

application must include site and plot plans, construction drawings, material specifications and engineering calculations. The only real effort at control is through engineering calculations. No zoning controls exist. There are no land use regulations or density controls. Building codes exist but cover only the building itself and not the site. Applications for a building permit outside the municipality are presented to the public municipal works department of the Ministry of Interior. Again, the only effort at control is through structural engineering.

It is much more difficult for a government agency to gain approval of a project. Proposals must climb up through Department heads to the Ministry level. The Ministry establishes a committee representing various affected agencies (NEEDB, Budget Bureau, Town and Country Planning, Department of Public Welfare, utilities authorities, etc.) for study. It is then presented to the Cabinet whereby, if approval is granted, authorization and money for implementation is appropriated. This procedure usually takes a long time. In addition, the Budget Bureau maintains regulations (known only to them) which can easily block a project not in its favor.

In public projects, inspection is made by architects and engineers of the agencies involved to see that plans are followed. Inside the municipal boundary of Bangkok-Thonburi,

inspection is made by the Municipality for building code adherence. The Municipality may also inspect roads, drainage and utilities construction. Outside the Municipality, the Department of Public and Municipal Works may inspect roads and building construction. Inspection by public authorities is often not very effective.

In private projects, architects and engineers of the developer make inspections. Large projects may have a field architect or engineer. Small projects are visited only occasionally. Occasional inspection is also made by the Municipality or Department of Public and Municipal Works. Sometimes materials suppliers such as the CMMC make inspection to insure proper use of their products. Inspectors dealing with the private sector generally do not charge a fixed fee. Instead, they receive a "payment" according to individual conditions.

The Metropolitan Electric Authority maintains electrical utilities, the Metropolitan Water Works Authority maintains water supply utilities within the Bangkok Municipality. The Irrigation Department may maintain small town water supplies in rural areas. The Municipality maintains roads and drainage inside the Municipality; the Department of Public and Municipal Works outside.

In the case of housing developments outside the Municipality, responsibility for maintaining utilities is not assumed by public agencies. A serious lack of maintenance results. Developers do little toward maintenance after completion of a project. An effort was made (not entirely successful) in the HG Project built by Intercontinental Homes to solve this by the formation of a homeowners' association to take over maintenance. Present regulations do not require a builder to post a completion bond for the satisfactory completion of utilities before the issuance of a building permit.

Property taxes are practically non-existent. New laws are being proposed by the NEDB. Construction tax of 2%, sales tax of 4%, land title charge of 1%, a house registration number fee, and land development tax of approximately 1/2%, are the only assessments. When land is owned but not lived upon, land tax is levied. This tax also applies to land with a house in excess of 400 wa².

Schools are built by the Ministry of Education. In addition, some private schools have been started, but are being squeezed financially by the government. Parks and playgrounds are usually not developed--even if space is allocated. Temples are built by the Department of Religious Affairs of the Ministry of Education. Shopping centers are built by the developer, usually in "shop-house" form and sold individually. Movie theaters, swimming pools, bowling alleys may be built by the developer or by private outside interests.

Generally, the developer usually relies on schools and community services in the neighborhood outside the project. If he does plan for services in the project, the land cost is split among individual house plots and construction cost is absorbed by the outside party operating the commercial facility.

8. CONCLUSIONS

Basing their judgement on the interviews and conferences in which the team participated during its visit to Thailand and the facts, as presented in this report, the pre-investment survey team has recommended that the AID Office of Housing, in cooperation with the Government of Thailand, proceed to examine the feasibility of guaranteeing \$32 million in private U. S. investments to be utilized as described in the recommendations.

8.1 Competitive Program

In the case of the competitive program directed to private sector applications (Recommendation III), the team has recommended that the AID Office of Housing (A/H) be authorized to take the steps necessary to proceed with a program to utilize \$6 million in guaranteed investments for a competitive private sector program to finance and sell houses with a maximum sales price of 150,000 Baht (\$7,500 U. S). With 10% down payment and 20 years to repay the loan, monthly payments would be approximately 1200 Baht (\$60. U.S) per month. Families earning 4800 Baht (\$240) per month would qualify as homeowners under this plan.

It has been suggested by AID and Thai persons with experience in housing in Thailand that the maximum sales price of the houses to be financed be raised to \$10,000 (200,000 Baht) and that the total amount of authorization for the guarantees for this part of the program be fixed at

\$10 million. The team would not have any objection to a decision which followed this suggestion. It should be noted however that the team would favor a statement in the program announcement that the sales price is one of the items which will be taken into consideration in the competitive judging of the proposals submitted for consideration by the private sector.

The team further recommends that the applicants be informed that they will be required to provide assurance for the completion of urbanization, green areas, commercial centers and other facilities as agreed upon to be built as part of the project and that funds will be withheld from each advance to insure such completion.

8.2 Recommendation I states that:

(a) Office of Housing (A/H) be authorized to reserve \$20 million in guarantee authority for two-stage capital assistance to a savings and loan system to be established by the RTG. If this authority is approved, A/H would be prepared to send a savings and loan specialist to Thailand who had previous experience with AID in this type of assistance. The savings and loan specialist would examine the appropriate institutions to be established by the Thai Government to undertake the responsibilities. He would also assist the Thai Government in making formal application to AID for a commitment by AID to guarantee a U. S. private

sector investment to the proposed institution for that purpose. The specialist or specialists recruited by AID would study existing institutions such as the Government Bank for Savings and other existing Thai organizations to determine if an existing organization could be structured or reorganized so as to effectively serve the purposes intended. The organization would have to be structured and staffed so that it could effectively attract the savings of middle and low-income people, and oriented so that it would utilize the funds secured exclusively for the financing of lower and middle income houses. The savings and loan specialist could also examine the feasibility of the proposed system to serve the country's needs as described above and to develop with experience to be an organization which could operate on a sound self-sustaining basis without further assistance from either the Thai Government or exterior sources. The report of the savings and loan specialist could also contain a recommendation with respect to the percentage of participation which the guaranteed investment would represent of the total initial capital of the proposed system.

(b) Recommendation I further states that the RTG should establish a suitable institution to guarantee home owner mortgage repayments. The team recommended that AID would offer the RTG technical assistance as appropriate to help the RTG in this effort. Although the savings and loan association could operate independently of the proposed homeowners mortgage insurance institution, the team strongly recommends that the

Thai government organize both organizations and that AID support the RTG in this effort.

The AID short-term specialists would examine the feasibility of utilizing existing Thai institutions to study their possible utilization for this purpose and would be prepared to discuss with Thai officials the structure and experience of other organizations which had been established with AID assistance in other countries to insure homeowner mortgage payment collections. The specialists could also be prepared to examine into the advisability of utilizing one organization to serve to mobilize individual savings as well as to undertake the insurance and guarantees. It is evident that the insurance organization should, in any event, be required to guarantee the mortgage investments made by the savings and loan system and thereby eliminate the necessity for the savings and loan system to establish a separate underwriting staff.

8.3 Recommendation II

Recommendation II recommended that authority be given to AID to reserve \$6 million in authorizations to support two programs of the Bureau of Housing of the Department of Public Welfare as follows:

(a) \$3 million in guaranteed investments to finance 50 percent of the total cost of construction by the Department (by private sector with public bidding) of houses for sale with maximum sales prices of 60,000 Baht (3,000) with 10 percent down payment and 25 years for principal repayment. The investment

survey team is of the opinion that this utilization of the guaranteed investments will enable the Bureau of Housing to make prompt payments to builders immediately upon completion of the construction of houses and urbanization and on sale to a qualified buyer. The team is convinced that with such assurance of payments, Thai builders will be able to build rapidly, and will introduce many cost savings techniques in the construction of the low cost homes which will result in substantial savings to the homeowners.

Survey team discussion with private builders indicated that the savings in urbanization and construction should enable the department to produce a 40 square wa²^{1./} house for 30,000 Baht leaving 30,000 Baht for land and development. With homeowner repayment extended to 25 years at an interest rate of 10% per annum, the monthly payments on a 56,000 Baht (\$2,800) mortgage (10% downpayment) would be about 500 Baht (\$25) per month. It is recommended that the sale of these houses be limited to families earning a maximum of 4,000 Baht (\$200.00 U.S) per month and that the program be designed and implemented so that the homeowners will be required to repay the entire cost of his home without government subsidy. A/H would be prepared to send a low cost housing expert to assist the Bureau of Housing in developing this program and to prepare the application to AID. The low cost housing expert will also examine the feasibility of this application and will make

1./ 1 Square wa = 4 square meters = 40 square feet.

appropriate recommendations to AID.

(b) \$3 million in guaranteed investments to support a sites and services program to be undertaken by the Department of Public Welfare, Bureau of Housing with the cooperation of the faculty of the School of Social Services of the University of Thammasat.

The Bureau of Housing has estimated that the monthly charge for land and development for a sites and services program would be 156 Baht (\$7.50) per month for a lot of 40 square wa² (See Annex 9.11). This assumes a 15 year repayment. This monthly charge would be reduced by extending the terms to 25 years. A number of alternative plans have been proposed including provisional houses, self-help construction by the homeowner, shell homes and other alternatives. All of which are contained in the report by Dr. David French cited in Section 5.3.1 above (Reference 10.16). The ultimate cost to the homeowner would depend upon the program decided upon and the extent of the self-help which would be required.

The A/H low cost housing specialist would be prepared to work with the Housing Bureau to establish the parameters and details of the proposed program which will include size, location, type of construction, extent of self-help, qualifications to be established for participants and the amount of repayment determined to be required from homeowner. The team recommends that although it is contemplated that the RTG will have to

subsidize some portion of the total cost of the project, that the program must be designed to insure that the homeowner be required to repay some portion of the total cost of the house as is determined to be suitable and that his qualifications be examined to make certain of his ability to make these required monthly payments before he is accepted as an eligible homeowner. We have been informed that the Department of Public Welfare is in a position to assist in lowering the cost of the project and to the homeowner by reason of ownership of land previously acquired at lower-than-market cost.

A prime objective of both of the programs described in Recommendation II is the utilization of these investments to enable the Department to establish a viable program for the construction and sale of low cost housing as part of its regular program. This program should be implemented without undue financial support from the Thai Government and without additional financial support from exterior sources. The low cost specialist would be requested to report on these aspects of the proposed programs as well.

The return to the U. S. investor is presently fixed at a maximum of 8% net which is the current rate required by the investors under the program. This rate may fluctuate depending upon the market at the time of the signing of the contract and loan agreement. By Act of Congress it cannot be higher than 1% over the rate fixed by the Administrator of the Federal Housing Administration for domestic mortgage

loans insured by that agency.

Since the loans will have the guaranty of repayment in dollars by the Thai Government, the AID fee will be 1/2 of 1% per annum of the unpaid balance.

LIST OF CONTACTS

Annex 9.1:

USOM/Thailand

Mr. Rey M. Hill - Mission Director

Mr. Osborn I. Hauge - Ass't Director for Capital Development

Mr. Phairoh Praiyanant - Economist

Miss Edna Boorady - USOM and Regional Attorney

Mr. E. C. Harrell - Economist

NEDB - National Economic Development Board

**Dr. Snoh Unakul - Director, Economic and Social Development
Planning Division**

Dr. Vinun Vichit-Vadakan - Chief, Social Projects Division

Mr. Gavin Jones - Manpower Expert

DTEC - Department of Technical and Economic Cooperation

Mr. Piew Phusawat - Director General

Department of Public Welfare

Mr. Prasit Kengrian - Director, Housing Bureau

Mr. Permchit Meekangwan - Chief Architect, Housing Division

Office of Town and Country Planning

Col. Chamlong Aranyakanon - Director General

Mr. Chaiya Poonsriwong - Chief, Planning Division

Mr. Nid Hin Shiranan - Special Comprehensive Project Plan Div.

Mr. Chalerm Kedkungwal - Chief, Research Div.

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Mr. Wattanyu Na Thalang - Director, Building Research

Mrs. Rattaya Chantian - Ass't Director, Building Research

Department of Land Cooperatives

Mr. Adul Niyomviphat - Deputy Director

Mr. Nob Anomasiri - Land Cooperatives Officer

Mr. Vipat Kivanond - Engineer

Department of Land

Mr. Adth Visutryothapibal - Director General

Mr. Siri Kevarinsuth -

Department of Labor

Mr. Vichit Santhong - Chief, Research & Statistics Division

Crown Properties Bureau

Mr. Poonperm Krairiksh - Director General

Mr. Chalerm Cheo-Sakul - Deputy Director

Bank for Housing

Mr. Tui Laosunthorn - Manager

Mr. Thaveevudh

Bank of Thailand

Mr. Nan Kitjalaksana - Exchange Control Division

Dr. Puey Ungphakorn - Governor of the Bank

Government Savings Bank

Mr. Thong Pengpian - Deputy Director

Bangkok Bank

Mr. Boonchu Rojanastien - President

IBRD - World Bank

Mr. Kenneth Bohr

United Nations

Mr. David French - Social Development Planner

Mr. John Taylor - ECAFE - Planning Expert

Bangkok Municipality

Mr. Thavil Rawangphai - Lord Mayor

Miss Arporn Chanchaoensook - City Planner

Mr. Chira Chitrakorn - City Planner

Mr. Tawil Prajoonta - Chief, Slum Clearance Planning

Mr. Risist Chomcharongpat - Architect, Urban Renewal

Thammasat University

Mrs. Nuan-Hand Amatayakul - Dean, Faculty of Social Administration

Miss Chira Sakornpan - Director, Klong Toey Survey

Mr. Natchai Tantisuk - Co-Director, Klong Toey Survey

IBEC - International Basic Economic Corporation (Thailand)

Mr. K.L. Wu - Chairman

CMMC - Construction Materials Marketing Corporation

Mr. Amarate Sila-on - Sales Manager

Mr. Bunlue Kumpanartsanyakorn - Engineer

Mr. Dhanit Siridhara - Architect

Bangkok First Investment and Trust Co., Ltd.

Miss Khanita Tauekarn - Ass't Managing Director

Thai Investment and Securities Co., Ltd.

Mr. Chumpol Nalamlieng - Vice President

Mr. Richard Carrick - Managing Director

National Housing and Finance Co., Ltd.

Mr. Bochana Sankhariksha -

Mr. Chak Panyarachun - Managing Director

Mr. V. L. Laman -

DEC Consultant Co., Ltd. - Bangkok North New Town

Mr. Likit Hongladarom - Director

Dr. Sumet Jumsai - Architect

Union Housing Estate Co., Ltd.

Mr. Sunant Rachanarat - Manager

Amornphant Ltd., Part.

Mr. Chaiwat Luangamornlert - Manager

Mr. Kriang-Krai Pornrojngkool -

Bangkok House of Commerce, Ltd.

Mr. Pramuen Niyomsithi - Manager

Mrs. Yaowarak - Ass't Manager

Intercontinental Homes

Mr. William Miller

Mr. Kobchai

ABC Trading Co., Ltd.

Mr. Chiochan Kiengsiri - Managing Director

Mrs. Punnee Buddhari

Land Investment Group Co., Ltd.

Mr. Surat Osathanukroh - Manager

Southeast Insurance Co., Ltd.

Mr. Vai Vathanakol - Executive Director

Rama Tower Co., Ltd.

Mr. Paul Yee - Financial Advisor

ANNEX 9.2: BFIT BULLETIN, MAY 1970, Bangkok First Investment & Trust Ltd.**HOUSING DEVELOPMENT IN THAILAND**

ONE of the main objectives of BFIT is to solve the present shortage of medium and long-term capital needed for housing and industrial development, particularly so in a developing country like Thailand. To attain the objective in housing, BFIT has set up Bangkok Home Development Co. Ltd., with the aim of providing long-term finance for housing development. Through the services of this new company, it is now possible for people to own their homes by means of instalments over ten to fifteen years.

As a private organisation, BFIT will concentrate its initial efforts on housing for the middle income group, while leaving the lower income groups to government agencies since lower income group housing can only be financed by subsidies from public funds. BFIT nevertheless hopes at some later date to extend financial assistance to lower income group housing as well.

The role of Bangkok Home Development Co. Ltd. is to stimulate action in three respects :

1. to finance mortgage loans on a long term basis up to ten to fifteen years to house buyers ;
2. to provide interim finance for housing project developers ;
3. to encourage housing project development, and in some cases make a direct investment in such projects.

Projects accepted for Bangkok Home financing must normally be provided with public facilities, and be easy of access for transportation. Land title deeds are examined and where land division has not yet been finalised, some form of guarantee is required



Houses at Kilometer 5, Lad Prao



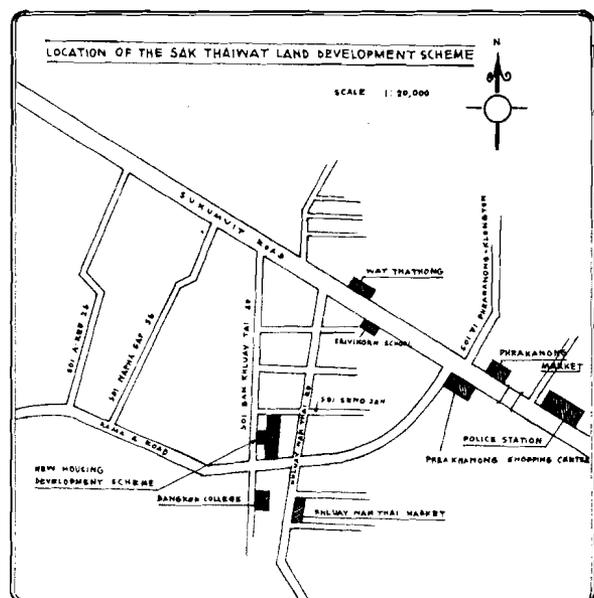
Houses at Soi On Nuj



Shophouses at Rama IV

for the title deed of the buyer. The project developer has to transfer the ownership of the land to the Bangkok Home Development Co. Ltd., which later transfers the titles to the house buyers once the instalment payments are completed. Houses which satisfy these conditions may be purchased on the BFIT instalment plan.

Although as yet in its early stages, Bangkok Home Development has already carried out a number of successful schemes. These include an interim finance scheme for a property developer, Khun Termsakdi Tangietanaphon, which has been used to finance the construction of 50 houses over a period of one to two years. These houses are situated in the Lad Prao area. BFIT has also provided mortgage finance for two projects, one operated by Intercontinental Housing at Soi On Nuj and covering the construction of 29 houses over ten years, and the other project situated on land adjoining Rama IV Road. This project, developed by Khun Sakdi Thaiwat, concerns shop-houses of superior quality, which may be purchased over eight years under the BFIT instalment plan.





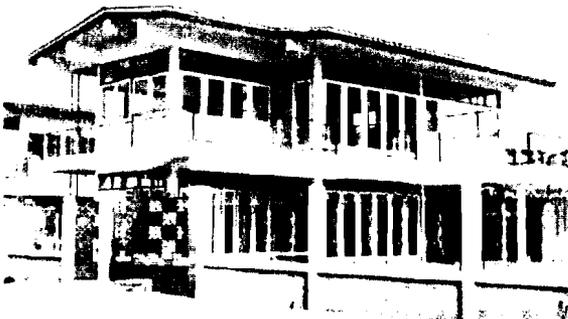
Houses at 2nd Kilometer, Lad Prao

Bangkok Home Development also intends to start a model housing development project for 500 to 1,000 houses for the middle income groups, defined in this case so as to cover families earning 4,000 to 5,000 baht per month. Since it has been found that families in Thailand can afford to set aside as much as 25 to 30 per cent of their income for housing, payments of from 1,500 to 2,000 baht per month are considered feasible, and these will suffice to make the project viable.

In the future, Bangkok Home Development may extend its activities into such fields as shopping centres and other large - scale multi - purpose development schemes, thus making a major contribution to the solution of the housing crisis which has for so long beset Thailand. In this way, BFIT fulfils its aim of mobilising finance and using financial expertise to improve living standards and promote sustained economic growth in Thailand.



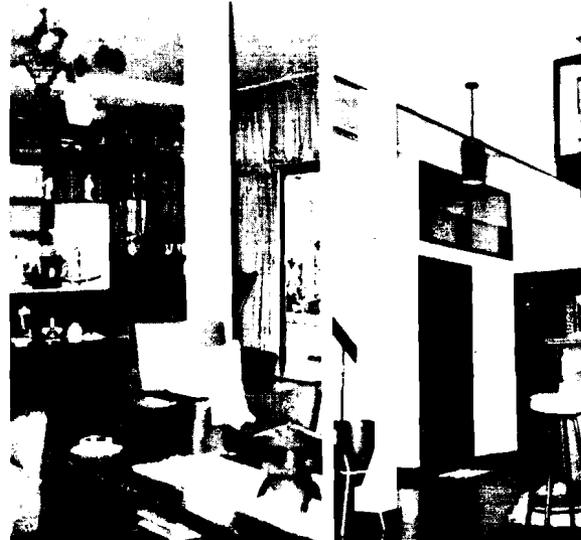
Houses at Soi On Nuj



Houses at Kilometer 5, Lad Prao



Inside houses at 2nd Kilometer, Lad Prao



Inside the Rama IV Shophouses



Houses at 2nd Kilometer, Lad Prao

Listing of Occupations and Average Wages, Department
of Labor Wage Survey, 1969

OCCUPATION	AVERAGE WAGE (baht)	
	monthly	daily
Professional class workers	2,165	39
Scientist and allied worker	2,219	—
Chemist	2,219	—
Architect, engineer and technician	2,192	39
City planner	2,263	—
Civil engineer	3,800	—
Electrical and electronic engineer	3,271	—
Mechanical engineer	2,973	—
Industrial engineer	4,600	—
Commercial designer	1,132	30
Civil engineer assistants	1,200	—
Electrical, electronic engineer assistant	1,064	47
Mechanical engineer assistant	1,600	—
Industrial engineer assistant	1,400	—
Professional nurse	1,780	—
Hospital nurse	1,650	—
Other nurses	1,867	—
Accountant	2,244	—
Sculptor, artist, photographer	800	—
Photographer and studio assistant	800	—
Administrator	2,764	—
Manager	2,764	—
Production manager	3,350	—
Other administrators	2,178	—
Clerk	1,389	27
Supervisory clerk	2,325	—
Bookkeeper and cashier	1,180	—
Transport and communications supervisor	1,650	—
Telephone and telegraph operator	—	29
Other telecommunications clerk	1,295	27
Postal and shipping clerk	1,065	27
Store clerk	—	25
Correspondence clerk	1,890	24
Other categories of clerk	1,152	—
Commercial trades worker	1,417	35
Sales and purchasing supervisor	1,675	35
Shop assistant	900	—
Service worker	649	24
Servant and housekeeper	433	—
Household keeper	579	17
Watchmen	617	17
Cleaner	350	17
Safety service worker	673	24
Livestock and farm workers	525	—
Gardeners	525	—

ANNEX 9.3

AVERAGE WAGE (baht)

OCCUPATION	skilled/semi-skilled		unskilled	
	monthly	daily	monthly	daily
Industrial workers as a whole	1,070	27	567	15
Production supervisor/foreman	1,756	32	—	—
Metal worker	823	39	350	20
Foundry worker	1,100	47	—	21
Metal coating worker	810	—	—	—
Other metal workers	—	36	350	19
Chemical processor	1,185	—	—	—
Knitter and weaver	570	16	—	12
Fibre worker	1,035	21	—	13
Weaver	489	16	—	12
Weaving and knitting machine fitter	1,275	15	—	—
Knitter	541	—	—	—
Dyer, tanner and textile decorator	565	16	—	—
General textile worker	—	20	—	—
Food and beverage processor	1,564	25	650	18
Dairy industry worker	888	—	650	20
Pastry worker	1,683	25	—	15
Tailor, seamstress, cushion maker	702	29	457	—
Dressmaker, tailor	808	22	457	—
Ready-made wear tailor and cutter	1,200	—	—	—
Seamstress and embroiderer	433	—	—	—

AVERAGE WAGE (baht)

OCCUPATION	skilled/semi-skilled		unskilled	
	monthly	daily	monthly	daily
Cushion and mattress maker and allied workers	428	33	-	-
Furniture maker	1,046	47	-	15
Wooden furniture maker	-	24	-	10
Other categories of furniture makers, carpenters	1,046	50	-	26
Blacksmith and instrument maker	1,786	27	667	16
Metal caster	842	-	-	-
Fitters and mechanics	1,905	28	975	-
Blacksmith	1,310	25	579	16
Machine tool operator	1,300	36	660	22
Weaving machine operator	732	28	-	-
Mechanic	1,275	45	-	17
Mechanic (except automobile and airplane)	1,992	34	678	-
Machine operator	974	35	640	22
Electrical technician	1,109	34	696	19
Electrical and allied workers	1,099	42	696	19
Electronic technicians	1,285	-	-	-
Radio and television repairer	1,232	30	-	-
Electrician	1,535	35	-	-
Telephone and telegraph worker	767	32	-	-
Electrical wire and cable worker	770	33	-	-
Electrical handyman job	600	29	-	-
Broadcast & television station staff	800	-	-	-
Pipe layer, welder	914	34	-	15
Pipe layer and plumber	717	28	-	-
Welder	1,182	37	-	-
Metal sheet maker	1,261	39	-	15
Welder and assembler	1,678	-	-	-
Ceramics or iron works, glass and earthenware worker	-	-	551	-
Glass worker	-	-	551	-
Rubber and plastic worker	800	25	-	-
Tyre worker	-	25	-	-
Paper and card board maker	-	20	-	-
Printing machine operator	710	39	340	9
Type compositors	813	41	400	-
Printer	617	34	-	-
Block maker	1,575	-	-	-
Bookbinder	474	-	200	-
Printing worker	-	-	311	9
Painter	1,005	38	350	16
House and building painter	1,000	27	-	11
Bricklayer, carpenter	796	32	-	14
Brick-layer, stone-layer and tile-layer	868	53	-	-
Concrete and cement worker, floor maker	-	39	-	-
Roof layer	-	51	-	-
Carpenter, woodworker, and parquet worker	719	31	-	14
General construction worker	744	-	-	-
Automobile worker	530	-	-	-
Dynamo worker	533	-	-	-
Engine worker	529	-	-	-
Port worker	650	-	-	-
Heavy equipment operator	-	30	-	-
Road labourer	-	25	-	-
Porter	950	50	-	-
Transport equipment worker	1,196	31	677	-
Locomotive driver and electrician	1,259	-	677	-
Signalman	796	-	-	-
Chauffeur	1,216	31	-	-
General labourer	712	19	546	15
Packer	712	19	499	11

ANNEX 9.4

CONSUMER PRICE INDEX DETAILS.

Group and subgroup	Indexes			Change to Mar. 1971 From:	
	Mar.'71	Feb.'71	Mar.'70	Feb.'71	Mar.'70
ALL ITEMS	118.3	118.3	117.3	0.0	+ 0.9
Food and Beverages	126.3	126.7	128.8	- 0.3	- 1.9
Rice and grain products	118.4	120.7	124.4	- 1.9	- 4.8
Meat, poultry and fish	115.0	116.5	125.4	- 1.3	- 8.3
Vegetables and fruits	137.8	131.8	147.7	+ 4.6	- 6.7
Eggs and milk products	102.0	106.6	101.4	- 4.3	+ 0.6
Other food bought in markets	103.8	103.9	103.8	- 0.1	0.0
Non-alcoholic beverages	148.6	148.7	136.0	- 0.1	+ 9.3
Prepared meals	142.4	142.4	135.5	0.0	+ 5.1
Clothing and cloth	99.3	99.5	98.7	- 0.2	+ 0.6
Men's and boy's	97.4	97.5	96.1	- 0.1	+ 1.4
Women's and girl's	102.3	102.8	104.1	- 0.5	- 1.7
Cloth and sewing services	104.4	104.5	102.5	- 0.1	+ 1.9
Health and Personal Care	113.1	110.8	110.2	+ 2.1	+ 2.6
Medical care	116.8	116.8	116.0	0.0	+ 0.7
Personal care	109.5	104.9	104.5	+ 4.4	+ 4.8
Housing and Furnishings	117.7	117.5	112.9	+ 0.2	+ 4.3
Shelter :	130.2	130.2	126.3	0.0	+ 3.1
House rent	141.5	141.5	135.7	0.0	+ 4.3
Land rent and building materials	106.7	106.7	106.8	0.0	- 0.1
Furniture and equipment	95.7	93.5	90.2	+ 2.4	+ 6.1
Paper and cleaning supplies	107.7	106.1	101.2	+ 1.5	+ 6.4
Household textiles	107.7	106.1	95.6	+ 1.5	+12.7
Household operations	113.8	113.8	108.7	0.0	+ 4.7
Transportation	114.0	114.0	100.9	0.0	+13.0
Vehicles	103.1	103.1	103.0	0.0	+ 0.1
Public transportation	118.6	118.6	100.0	0.0	+18.6
Recreation and Education	107.7	107.7	103.5	0.0	+ 4.1
Recreation	108.8	108.8	101.8	0.0	+ 6.9
Reading and Education	106.0	106.0	106.0	0.0	0.0
Tobacco and Alcoholic Beverages	101.2	101.2	99.9	0.0	+ 1.3
SPECIAL GROUPS					
Food	126.3	126.7	128.8	- 0.3	- 1.9
Non-Food	110.4	110.0	106.1	+ 0.4	+ 4.1
Commodities	117.9	118.2	118.6	- 0.3	- 0.6
Import	106.1	107.0	104.6	- 0.8	+ 1.4
Domestic Goods	119.1	119.4	119.9	- 0.3	- 0.7
Services	120.5	119.5	113.0	+ 0.8	+ 6.6

Source: Department of Commercial Intelligence

ANNEX 9.5

Commercial Bank Deposits^{1/} in Bangkok-Thon Buri and Other Provinces

(Millions of Baht)

End of period	Bangkok and Thon Buri				Other Provinces				Total			
	Demand	Savings	Time	Total	Demand	Savings	Time	Total	Demand	Savings	Time	Total
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1955 December	4,507.3	694.4	5,166.9	10,368.6	1,174.3	682.6	1,916.1	3,773.1	5,681.6	1,377.0	7,083.0	14,141.6
1956 December	5,274.7	1,055.9	6,728.0	13,058.6	1,183.6	951.1	2,803.3	4,941.0	6,453.3	2,010.0	9,531.3	17,999.6
1967 December	5,802.1	1,082.6	8,549.4	15,428.1	1,180.7	1,112.0	3,405.3	5,698.0	6,982.8	2,194.6	11,948.7	21,126.1
1968 March	5,866.4	1,079.0	8,970.5	15,808.1	979.0	1,133.2	3,408.2	5,628.7	6,845.4	2,212.7	12,378.7	21,436.8
June	5,984.7	1,122.2	9,338.5	16,332.8	1,000.4	1,143.7	3,593.2	5,819.9	6,985.1	2,265.9	12,931.7	22,182.7
September	6,259.2	1,261.8	9,883.2	17,192.8	1,166.3	1,152.4	3,881.3	6,396.4	7,405.5	2,414.2	13,769.5	23,589.2
December	6,548.8	1,286.2	10,358.3	18,153.3	1,328.4	1,200.0	3,950.4	6,478.8	7,877.2	2,486.2	14,303.7	24,872.1
1969 March	6,875.4	1,364.3	10,840.9	18,580.6	1,287.5	1,039.3	4,348.7	6,675.6	7,662.9	2,403.6	15,189.7	25,256.2
June	6,193.9	1,479.0	11,263.0	18,915.9	1,250.1	1,112.2	4,620.6	6,982.9	7,441.0	2,591.2	15,883.6	25,918.8
September	6,330.1	1,422.6	11,717.4	19,470.1	1,409.5	1,209.6	5,041.3	7,660.6	7,739.6	2,632.2	16,758.9	27,130.7
December	6,695.6	1,425.3	12,260.3	20,381.2	1,345.8	1,368.4	5,128.9	7,843.1	8,041.4	2,793.7	17,389.2	23,224.3
1970 March	6,722.3	1,369.4	12,887.9	20,979.6	1,407.0	1,278.9	5,273.1	7,959.0	8,129.3	2,648.3	18,161.0	23,938.6
June	6,609.3	1,338.4	13,478.7	21,426.4	1,367.4	1,338.4	5,581.3	8,271.3	7,976.7	2,661.0	19,060.0	23,697.7
September	6,537.0	1,422.9	14,205.8	22,165.7	1,526.3	1,428.5	5,993.3	8,948.0	8,063.3	2,851.4	20,199.1	23,113.7
December	6,976.6	1,407.9	14,621.3	23,005.8	1,544.3	1,526.1	6,438.1	9,508.5	8,520.9	2,934.0	21,059.4	23,514.3
1971 January	6,685.2	1,464.6	14,922.7	23,072.5	1,427.3	1,483.5	6,523.6	9,434.4	8,112.5	2,948.1	21,446.3	23,506.9
February	6,976.1	1,456.8	15,125.8	23,558.7	1,413.8	1,465.5	6,681.2	9,560.5	8,389.9	2,922.3	21,807.0	23,119.2
March	7,102.0	1,476.8	15,436.7	24,015.5	1,538.1	1,461.1	6,779.5	9,781.7	8,640.1	2,940.9	22,216.2	23,797.2

^{1/} Including inter-bank deposits.

Source: Bank of Thailand

1969 Wages - Department of Labor

<u>Professional, Technical, Etc.</u>	<u>Mo.</u>	<u>Day</u>
Architects, Planners	2,263	-
Civil Engineers	3,800	-
Elec. "	3,271	-
Mech. "	2,973	-
Draftsmen	1,132	30
Technicians	1,000-1,600	47
<u>Managerial</u>		
Production Managers	3,350	-
Other Manager-Types	2,178	-
<u>Clerical</u>		
Supervisors	2,325	-
Book-keepers Etc.	1,180	-
Clerks-General	1,295	-
<u>Building Caretakers</u>		
General	617	17

	<u>Skilled</u>		<u>Unskilled</u>	
	<u>Mo.</u>	<u>Day</u>	<u>Mo.</u>	<u>Day</u>
<u>Woodworking</u>				
Cabinet Makers	-	24	-	10
Woodworkers	1,046	50	-	26
<u>Electrical</u>				
Electrical Fitters	1,099	42	696	19
Electricians	1,535	35	-	-
Telephone Installers	767	32	-	-
Linemen	770	33	-	-

	<u>Skilled</u>		<u>Unskilled</u>	
	<u>Mo.</u>	<u>Day</u>	<u>Mo.</u>	<u>Day</u>
<u>Plumbers, Welders</u>				
<u>Sheet Metal Workers</u>				
<u>Structural Metal Workers</u>				
Plumbers/Pipe Fitters	717	28	-	-
Welders/Flame Cutters	1,182	37	-	-
Sheet Metal Workers	1,261	39	-	15
Structural Metal Workers	1,678	-	-	-
<u>Painters</u>				
Construction	1,000	27	-	11
<u>Bricklayers, Carpenters</u>				
Bricklayers, Stonemasons				
Tile Setters	868	53	-	-
Reinforced Concrete, Cement				
Finishing, Terrazzo Workers	-	39	-	-
Roofers	-	51	-	-
Carpenters, Joiners, and				
Parquet Workers	791	31	-	14
Related Construction Workers	744	-	-	-
<u>Material Handling, Equipment</u>				
<u>Operators</u>				
Crane/Hoist Operators	-	30	-	-
Earth Moving Equipment	-	25	-	-
Other	950	50	-	-
<u>Miscellaneous Labor</u>	-	-	550	16

Market Price of Construction Materials

Stone 2"	M ³	85-90	Baht
Stone 3-5"	"	65-70	"
Large Stone	"	70	"
Laterite	"	42-45	"
Sand Fill	"	23-27	"
Sand	"	42-45	"
Cement, "Tiger Brand" (Portland)	MT	425	"
Cement, 50 Kg. Bag	Bag	24	"
Steel Re-Bars	MT	3500	"
Steel Re-Bars	Kg.	5	"
Steel Wire	Kg.	5	"
Teak	Ft ³	85-100	"
Hardwood, Long	"	60	"
Hardwood, Short	"	35-40	"
Softwood	"	28-30	"
Plywood, Yang	4x8x4mm Sheet	48	"
Plywood, Teak	" "	220	"
Pile	3" x 3M	4-5	"
Pile	4" x 4M	9	"
Pile	5" x 5M	17-20	"
Pile	6" x 6M	25-30	"
Pile	8" x 8M	50-70	"
Asbestos-Cement	4'x8'x4mm Sheet	28	"
Asbestos-Cement	4'x8'x6mm Sheet	56	"
A/C Tile, White	0.45 x 1.2m	10	"
A/C Tile, Colored	"	12	"
Tile Clips 8"	Carton	0.20	"
Nails	"	90	"
Nails	Kg.	5	"
Clear Glass 1/8"	Ft ³	6	"
Clear Glass 1/4"	"	8	"
Translucent Glass 1/4"	"	25	"
Brick, "CPAC"	Unit	2	"
Brick	"	1.65	"
Thai Brick	100 Unites	70-80	"
Window Frame	0.5 x 1.05m	65	"
Door, Teak	0.9 x 2.0m	150	"
Door, Teak	Pair "	280	"
Door, Yang	0.9 x 2.0m	170	"
Wrought Iron	MT	300	"
Wrought Iron Labor	"	60-90	"

A. Labour rates

Worker	Rate, baht per hour	
	Bangkok	Up country [*]
Mason	7 - 10	9 - 15
Carpenter	6.20 - 7.50	8 - 10
Electrician	7 - 10	9 - 15
Plumber	5 - 6.50	6 - 9
Glazier	4 - 5	5 - 7
Painter	5 - 6	6 - 8
Steel bender	4 - 6	4 - 6
Concrete mixer	4	4
Welder	6.25 - 10	8 - 12
Equipment operator	4	6
Mechanic	4	6
General workman	2 - 3	1 - 2

B. Material prices

Material	Unit	Unit price in baht
Silica cement	ton	465
Portland cement	ton	530
Super cement	ton	560
Coarse sand	m ³	45
Fine sand	m ³	38
Reinforced steel	ton	2,950
Crushed aggregate No. 1	m ³	76
Crushed aggregate No. 2	m ³	83
Crushed aggregate No. 3	m ³	70
Gravel aggregate	m ³	95

^{1/} Compiled by Department of Building Technology, Bangkok Technical Institute.

Material	Unit	Unit price in baht
Soft wood	ft ³	33
Hard wood	ft ³	44
Quick lime	m ³	250
Hydrated lime	ton	400
Water:	m ³	1.50
Steel profile	ton	3,500

C. Job costs

Job	Unit	Cost in baht
<u>Excavation</u>		
Excavate over site to remove top soil 15 cm deep and get out (scraping)	m ³	8
Excavate over site to reduce levels and get out (cut)	m ²	2
Excavate surface trench not exceeding 1.5 m deep and get out (cut)	m ³	10 - 15
Return fill in and well ram excavated material around foundations (fill)	m ³	10 - 15
Load and cart away from site surplus excavated material (cut and haul)	m ³	5
	m ³	6
<u>Reinforced concrete (1:2:4) (labour and materials)</u>		
15 cm concrete slab (unreinforced)	m ²	57
15 cm concrete slab reinforced with mesh	m ²	92
<u>Wall construction (labour and materials)</u>		
15 cm solid concrete block wall in cement mortar (1:4)	m ²	80
20 cm hollow concrete block wall in cement	m ²	87
15 cm reinforced concrete (1:2:4) wall including formwork and reinforcement	m ²	160
10 cm Mon brick wall including formwork	m ²	64
14 cm fired brick wall (no plastering)	m ²	110

Job	Unit	Cost in baht P. 6
25 cm wood wool wall including formwork	m ²	53
12.5 cm wood wool wall including formwork	m ²	50
0.6 cm teak plywood wall including formwork	m ²	90
10 cm hollow concrete block wall in cement mortar (1:4)	m ²	72
15 cm hollow concrete block wall in cement mortar (1:4)	m ²	80
"Roman Tile" asbestos wall including formwork and accessories (100 x 1.20 m)	m ²	55
Asbestos Louver Sheets wall including formwork and accessories	m ²	60
Soft wood wall	m ²	45
Hard wood wall	m ²	53
Bamboo Mat-Lime Plastered	m ²	45
<u>Wall and ceiling finishing (labour and materials)</u>		
Internal or external rendering (cement and sand 1:4) including all sundry labours on block walls or concrete walls including raking out joints or hacking for key	m ²	18
Internal rendering as last on concrete soffits including hacking for key	m ²	15
Coloured Tyrolean external rendering, including all arrises and sundry labours on block walls or concrete walls including raking out joints or hacking for key	m ²	15
$\frac{1}{2}$ inch termite-proofed insulating boarding to soffits and fixing to timber joints including all cutting and waste	m ²	58
$\frac{1}{2}$ inch acoustic tile 24 inches x 24 inches to soffits and fixing to timber joists	m ²	100
$\frac{1}{4}$ inch x 6 inches white glazed wall tiling on and including $\frac{1}{2}$ inch cement and sand (1:3) screed	m ²	85
$\frac{3}{4}$ inch x 3:16 inches ceramic mesaic on and including cement and sand (1:3) backing	m ²	100

Job	Unit	Cost in baht
Roof construction (labour and materials)		
Single pitch roof with timber trusses and purlins and independant rafters up to 6 m span and 1.20 m rise (no roofing cover)	m ²	55
Double pitch roof with steel tabular trusses to 12 m span and 1.20 m rise	m ²	300
Roof covering (labour and materials)		
Standard corrugated asbestos (large size) roofing fixed to timber purlins (Sheet rises 102 x 120 cm)	ea	
102 x 150 cm		50
102 x 180 cm		65
102 x 240 cm		86
Standard (small size) corrugated asbestos roofing fixed to timber purlins (sheet size 54 x 150 cm)	m ²	45
"Roman tiles" corrugated asbestos roofing fixed to timber purlins (size 50 x 90 cm)	m ²	34
50 x 120 cm)		35
50 x 150 cm)		32
50 x 180 cm)		32
Three-layer felt roofing laid on and including (av.) 1½ inches cement and sand screed	m ²	60
Corrugated (protected) steel sheet 22 SWG	m ²	30
Corrugated plastic sheeting (translucent sheets)	m ²	60
Concrete tiles plain	m ²	100
Clay tiles	m ²	200
Prepare and two coats of cement paint on rendered walls	m ²	12
Ditto on rendered ceilings	m ²	12
Prepare and two coats of emulsion paint on rendered wall	m ²	14
Ditto on rendered ceilings	m ²	14

Job	Unit	Cost in baht
Prepare and three coats of oil colour on metal work	m ²	20
Knot, prime, stop and two undercoats and one finishing coat on woodwork	m ²	18
Prepare body in and two coats wax polish on woodwork	m ²	6
<u>Floor finishing (labour and materials)</u>		
5 cm cement and sand paving troweled hard and smooth	m ²	29
5 cm granolithic paving (1:1:2) troweled hard and smooth	m ²	45
2.5 cm terrazzo tile paving 20 cm x 20 cm with marble chippings	m ²	50
2 cm thermoplastic tiles bedded and jointed (asphalt tiles)	m ²	70
2 mm vinyl tiles bedded and jointed	m ²	60
($\frac{1}{2}$ ")..... wood block tongued and grooved flooring	m ²	40
2.5 cm cement and sand (1:7) floated bed for pavings	m ²	10
2.5 mm cement and sand (1:4) floated bed for pavings	m ²	13
Clay tile	m ²	50
Concrete tile	m ²	40
Linoleum	m ²	125
Vinyl asbestos	m ²	55
Asphalt (in situ)	m ²	15
Rubber sheet	m ²	180
Parquet (teak)	m ²	120
<u>Plumbing and drainage (materials only except as noted)</u>		
$\frac{1}{2}$ " galvanized mild steel tubing including screwed lead joints	lm	7.5
$\frac{3}{4}$ " ditto	lm	9
1" ditto	lm	12

Job	Unit	Cost in baht
Extra for 1" elbow	ea	2.50
Extra for 1/2" tee	ea	2
Extra for 1" tee	ea	3.5
(4") diameter asbestos cement drain pipes including all joints and laying in trench	lm	20
6" ditto	lm	40
4" diameter cast-iron drain pipes including all joints and laying in trench	lm	48
6" ditto	lm	92
Toilet seat, oriental type	ea	
1) Cement		35
2) Ceramic		120
Toilet seat, flush type	ea	
1) European made (plus installation)		1,300
2) Japanese made (plus installation)		900
Wash basin	ea	
1) European made (plus installation)	ea	500
2) Japanese made (plus installation)	ea	400
<u>Door and window (materials only)</u>		
Door	Window	ea
1) Plain wooden door		
a) soft wood 100 x 200 cm		85
b) hard wood 100 x 200 cm		120
2) Plywood door (teak)		
a) 70 x 200 cm		190
b) 80 x 200 cm		200
c) 90 x 200 cm		220
d) 100 x 200 cm		230

Job	Unit	Cost in baht
Door		
Window		
3) Glass door		
a) plain glass 100 x 200 cm		370
b) filter glass 100 x 200 cm		550
<u>Piling (labour and materials)</u>		
Wood pile		
Ø4" x 4.00 m	ea	14
Ø5" x 5.00 m	ea	22
Ø6" x 6.00 m	ea	43
Ø8" x 8.00 m	ea	115
Ø10" x 10.00 m	ea	670
Ø12" x 10.00 m	ea	670
Ø14" x 14.00 m	ea	670
<u>Prestressed concrete pile (labour and materials)</u>		
18 cm x 18 cm x 7.00 m	ea	330
18 cm x 18 cm x 6.00 m	ea	290
18 cm x 18 cm x 8.00 m	ea	370
35 cm x 35 cm x 16.00 m	ea	3,400
35 cm x 35 cm x 17.00 m	ea	3,550
35 cm x 35 cm x 18.00 m	ea	3,700
35 cm x 35 cm x 19.00 m	ea	3,850
35 cm x 35 cm x 20.00 m	ea	4,000

Bids called for 10,000 unit housing project

TENDERS have been invited for the 10,000-unit housing project of the Public Welfare Department, Mr Suwan Ruenyots, Director-General of the Department said yesterday.

Bidding application forms 2 and 31 at a cost of 1,000 baht per set, Mr Suwan said.

could be obtained at the department's Housing Assistance Division between August

and September 31 at a cost of 1,000 baht per set, Mr Suwan said.

So far three bidders had bought application forms. Successful bidders would be allowed to invest in at least 4,000 units of the housing project on 300 rai plots of land in suburban areas of Bangkok and Thon Buri.

Bids had to be submitted on November 1 between 9 and 11 a.m. and envelopes would be opened at 11.15 a.m. in the department's conference room, Mr Suwan said.

Successful bidders would be required to deposit one million baht guarantee either in cash or cheque.

Mr Suwan said the Department could not fix the location of the apartments in case landlords took advantage by increasing the price of land in the areas appelted.

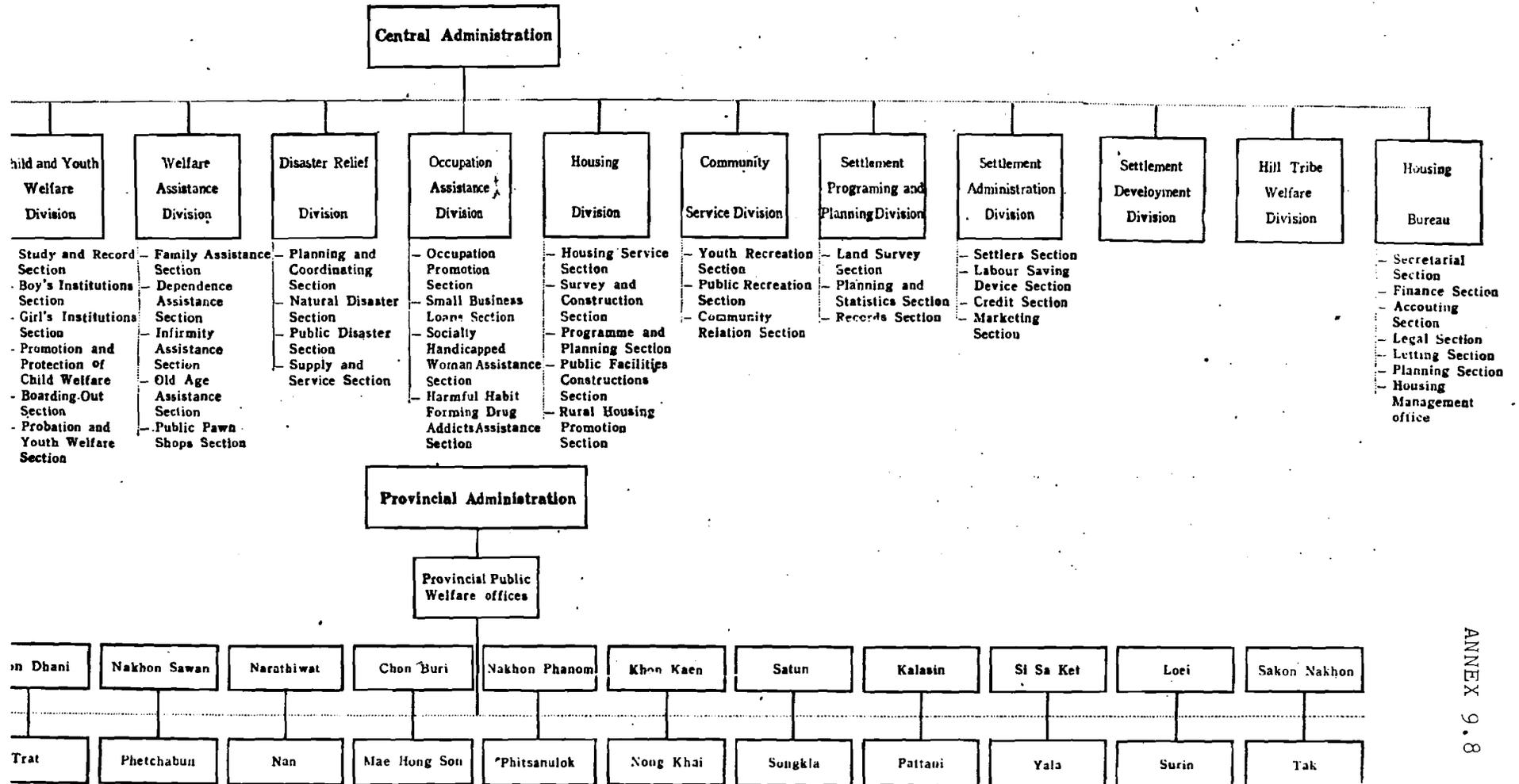
However, Mr Suwan said the department had reserved two pieces of land, one at Din Daeng in Phya Thai District which had room for the construction of 1,358 units, and the other at kilometre 11 of the Rangsit-Nakhon Nayok Road.

The winning bidders would not be required to buy the land at these two sites, but would be asked to invest according to a specified number of housing units.

The department had proposed alternative sites for the rest of the 10,000-unit apartments in Bangkok, Thon Buri and Nonthaburi.

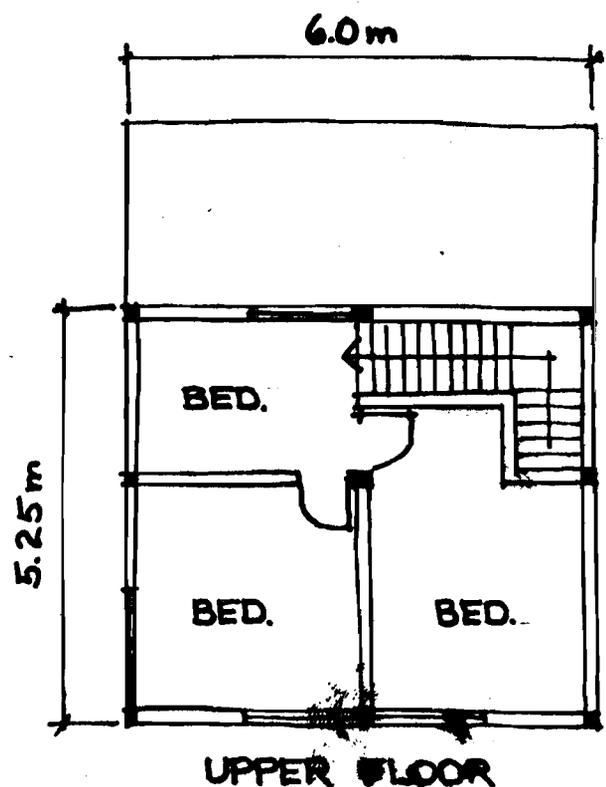
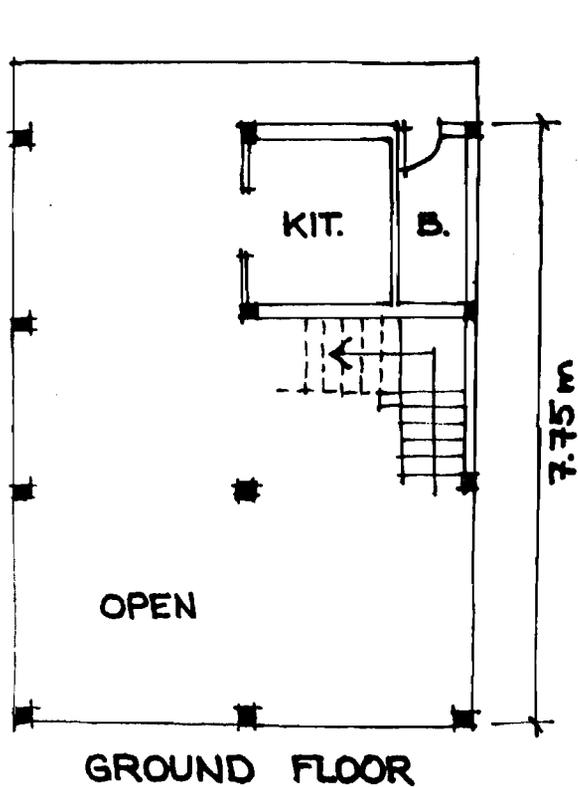
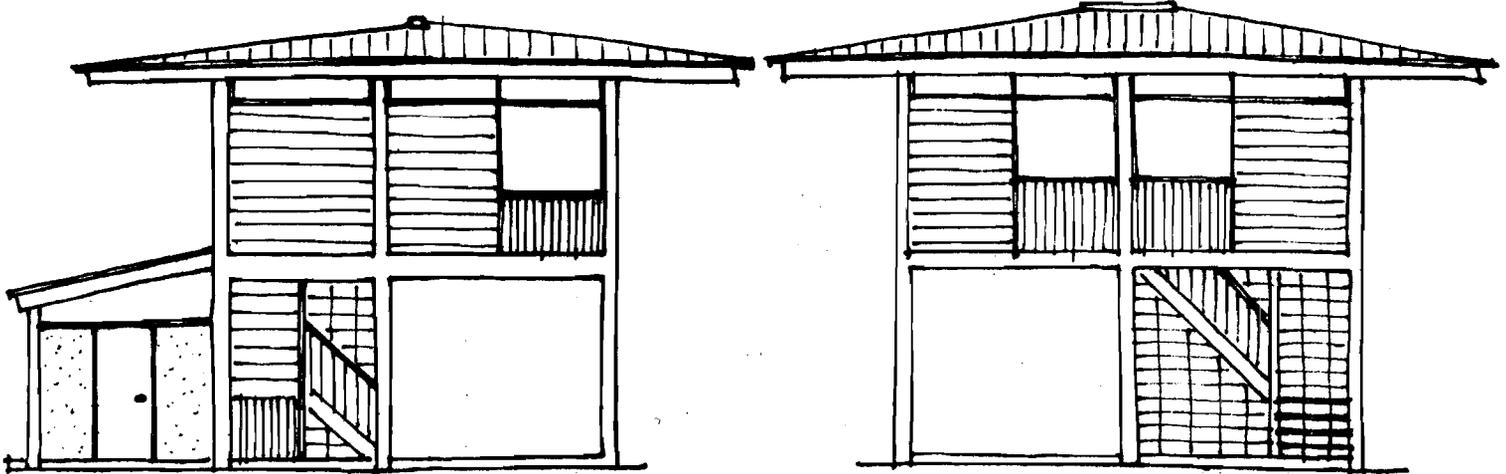
Organization Chart of the Department of Public Welfare

As of 1969



TYPICAL MINIMUM PLAN

40 m² - 40,000 ₪ - CONSTRUCTION
50 wa² - 40,000 ₪ - LAND + DEVEL.



ANNEX 9.10

CONSTRUCTION MATERIALS

Cement Industry

Siam Cement Co., Ltd. was founded in 1913. Combined production capacity of its three plants in 1969 was 2,300,000 MT. The company produces ordinary portland cement ("Elephant" brand), silica cement ("Tiger" brand), quick-setting cement ("Erawan" brand) and white cement. Small quantities of colored finishing cement are also produced. Raw materials (marl, clay, laterite, gypsum) are all available in Thailand.

Jalaprathan Cement Co. was built in 1953 by the Irrigation Department for the construction of the Bhumibol Dam. Its capacity is 300,000 MT/yr.

Cement was in short supply during the Vietnam war buildup, but now there is an excess of production. Cement is exported to Laos and Vietnam. Some special grades of cement, particularly high-early-strength cement, is imported from Japan.

Asbestos-Cement Industry

The Siam Fibre-Cement Co., Ltd., organized in 1938, produces tile roofing, corrugated sheet, flat sheet, and pressure pipe. Raw asbestos is imported from South Africa, but it comprises only 15% of the product; portland cement, locally produced comprises the remaining 85%. Production capacity in three plants is 265,000 MT/yr. of corrugated sheet and tile, 125,000 MT/yr. of flat sheet, and 45,000 MT/yr. of high and low pressure pipe. Asbestos-cement is rapidly becoming a preferred building material in Thailand, replacing corrugated iron roofing.

-2-

Concrete Products

Concrete Products and Aggregate Co., Ltd., established in 1952, makes a variety of pre-cast elements including hollow block, prestressed posts poles and piles, structural elements, and plain and reinforced concrete pipe. The company also provides ready-mix concrete and crushed rock. Raw materials are readily available. Reinforcing steel is the only import item. Quick-hardening cement comes from the Siam Cement Co. current production is 40,000 M³ of piles, beams and telephone poles; 13,000 M³ of precast footings, slabs, and concrete pipe; 4 million hollow blocks; 500,000 M³ of ready-mix; and 450,000 MT of crushed rock.

Thai Concrete Products Co. (1967) also produces hollow blocks, pipes, and piles in a variety of sizes. Daily capacity is 10,000 blocks, 400 pipes, and 200 piles. Several smaller companies also manufacture concrete products.

Lime Industry

Quicklime and hydrated lime production is irregular, but adequate. There are about twenty lime kilns of about 300 tons yearly capacity and four large kilns with a capacity of 2,500-15,000 tons per year. Quicklime is produced for highway construction and masonry needs.

Gypsum Industry

Thai Gypsum Co., Ltd. began mining raw gypsum in 1958. Present capacity is in excess of 5,000 MT per month. The company also produces small amounts of stucco plaster and fibrous plasterboard.

Sheet Glass Industry

The Thai-Asahi Glass Co., Ltd. began production in 1965 of plain and ground sheet glass. Thicknesses range from 2-6 mm. Dimensions range up to 190 x 245 cm. Capacity is 5 million M² per year. * Raw materials (sand, limestone and Dolomite) are available in Thailand. However, soda ash must be imported from Japan. Production exceeds demand, and glass is exported to Australia, Cambodia, and Laos.

Clay Products Industry

Brick is produced in two primary sizes, standard brick and "Thai Brick". Production in both cases is by hand in small factories. About 50 million standard size brick are made per year. There is no estimate for Thai Brick. Standard brick costs 950-1,000 Baht/1,000 while Thai Brick costs one-eighth as much at 120-125 Baht/1,000. Thai brick is made from the plastic clay taken from rice paddies and riverbeds. The clay is mixed with sand or rice husk, then fired in a draught kiln. Production is a seasonal, family-operated business.

Ceramic Tile and Pipe Production is small. Output depends upon orders. The major demand is for religious and administrative buildings of traditional motif.

Hollow Structural Tile is being produced in increasing quantity in Thailand. It is used in interior partitions and as wall infill in newer buildings. Its development is being urged by the Applied Scientific Research Corporation.

*Note: Thicknesses and cross section dimensions are given in the metric system while surfaces and lengths are quoted in feet and inches.

Porcelain Sanitary Ware is completely imported. Some sanitary ware made locally of concrete and terrazzo. Asian Toilets are produced locally.

Wood Industry Thailand has extensive forest resources of high commercial value. Teak and yang have long been used in housing construction, but their increasing value as export commodities has led to use of other hard and softwoods in local construction. The following table illustrates some preferred house building woods.

Preferred Timber Species for House Construction

<u>Local Name</u>	<u>Application</u>
Kabak	Concrete Forms
Daeng	Flooring, siding, boards
Phluang	Flooring, siding, shingles temporary structures
Rang	Post, beams, structural elements
Sak	Furniture, flooring, doors, windows
Saya	Panelling, partitions, flooring, doors, windows
Takhian	Panelling, partitions
Teng	Posts, beams, structural elements
Yang	Floorings, siding, shingles, temporary structures

Demand for wood in construction and in other wood-using industries is

exceeding production, and prices are rising about 10% per year.

Hardwood costs about 2,000 Baht/M³, softwood about 1,200 Baht/M³, teak about 4,500 Baht/M³.

There are over 500 small sawmills in Thailand. Only the three mills of the Forestry Industries Organization have a large output. There are approximately 300 wood working and furniture factories, eleven paper mills, thirteen match factories, 26 dry-kiln plants, seven impregnation plants, and seven parquet flooring factories.

Plywood

Thai Plywood Co., Ltd., owned by the Thai Government Forest Industry Organization began plywood production in 1957. Its plant includes two plywood mills, two veneer mills, a flush door mill, and a sawmill.

Plywood is by far the most important product, with a capacity of about three million sheets per year. Raw materials are Sak, Yang, Saya, and Kabak, all available in Thailand. However, raw material costs are increasing at about 10% per year due to timber production inadequacies. Both exterior and interior plywood are produced. Most of the glues for manufacture are imported.

The Bangkok Plywood Factory was formed in 1966. Its capacity is 7,000 sheets per day but production is low due to shortage of raw material.

Particle Board and Fibreboard

Sriraja Shaving Board Co., Ltd. is a subsidiary of Crown Properties and

makes particle board out of scraps from a Crown Property sawmill. Standard sheet (5-22 mm. thick) comes in two sizes, 4' x 8' and 1.25 m. x 2.50 m. Some decorative laminated board with teak veneer is also produced. Interior and exterior sheet is produced. Climatic moisture conditions make the exterior sheet far more preferable, even for interior work. Glues are imported. The company also produces fibreboard.

Thai Plywood Co. produces fibreboard as well. Its raw material comes from the log waste and scrap of its veneer plant. Total capacity of fibreboard production in Thailand is about eight million M² per year.

Only one plant is manufacturing "cellocrete." This is wood-wool board which requires a time-consuming process of soaking and curing for manufacture. Raw materials of portland cement and split "Somphong" wood are available locally but transportation of "Somphong" from up-country is sometimes difficult. Boards come in sizes of 1.00 x 2.00 x 0.025 m. Maximum daily capacity of the company is 300 boards. The material, although difficult to produce, is popular because of its insulating value in partitions, ceilings roof decks and sheathing.

Asphalt

Thai Asphalt Manufacturing Co. began production in 1965. Present capacity is 7,000 barrels a day. Esso Standard Ltd. has bought the plant and is expanding it.

Steel Products

Large deposits of iron ore are located in Thailand. Mining production in 1966 was about 700,000 MT, most of which was exported to Japan.

New finds and increased local demand for ore by newly established steel mills is expected to raise production. Iron ore ranks second in export earning, after tin.

Reinforcing Steel

The Siam Iron and Steel Company has been operating a foundry since 1950. Its production is pig iron, reinforcing steel bar (plain and deformed), and some casting. Raw material is scrap iron. 20,000 MT of pig iron are produced per year; 7,500 MT of reinforcing steel; and 4,500 MT of castings. A new rolling mill and electric arc furnace has just been installed. Production of reinforcing steel is expected to rise to 165,000 MT per year by 1973.

Thai Steel Co., Ltd. also produces reinforcing steel. Production is 6,000 MT per year.

Bangkok Iron and Steel Co. produces 30,000 MT of reinforcing steel from scrap iron.

G. S. Steel Co., Ltd. a Thai-Japanese firm, built a plant in 1967. It produces 90,000 MT of reinforcing steel per year. Output is expected to increase to 130,000 MT.

Thailand is rapidly becoming self-sufficient in reinforcing steel. In

1965, nearly all steel products were imported. By 1973 Thailand is expected to produce enough to meet domestic demand.

Steel Pipe and Tube

Thai-American Steel Works Co., Ltd. and Thailand Steel Pipe Co., Ltd.

produce steel gas and water pipe and mechanical tubing. Capacity of the Thai-American plant is over seven km. of 1/2"-4" dia. pipe and tube per hour, depending on size. Combined capacity of the two factories is said to be adequate for domestic need.

Paints and Varnishes

Most all paints, varnishes, lacquers, thinners and solvents are imported. Some important resins such as gum and lac are produced locally and exported. Thailand is the world's second largest producer of seedlac and shellac. There is some small-scale paint production. The Metropolitan Paint Factory, just outside Bangkok, is the largest domestic producer.

Plastics

Most plastics are imported. The Siam Fibre Cement Co. makes glass reinforced polyester sheet and PVC pipe. Capacity is being expanded.

See below for list of list of imports/exports

Transportation is by rail, truck and barge. There are no difficulties except in the case of timber and ores located in remote areas. Shipping cost depends upon location, but averages about 10 Baht/MT.

PUBLIC WELFARE
SITES AND SERVICES COST ESTIMATE

First stage Upon receiving the budget 200 rais of land in the suburb of Phra Nakorn and Thon Buri, the total of 400 rais, will be bought.

Second stage When the land is selected, the feature and boundary of the land will be noted for making layout/land allocation into small plots of 40 square wahs each, the total of 1,480 allocated plots in each province, as well as the layout of road, drainage, foot path, school, market, shops and others in the remainder of the land and including the supervision of bidding for the land development operation.

Third stage The operation of the project is then carried out by the contractor who must complete his work within an approximate period of 1 year as fixed in the contract.

Forth stage While the cooperation is being carried out by the contractors, an announcement will be issued to the distressed hirers suffering from the expiration of the Land and Housing Rent Control Act to file a petition to hire purchase the allocated land and acquire immediate information which plot of the allocated land each of the petitioners have be granted to hire purchase. If an allocated plot is completed, the granted petitioner may start the construct of the house immediately.

5. Expenses to be consumed from the budget for this project

5.1 Land , 400 rais @ Baht40,000.-	Baht16,000,000.-
5.2 Levelling up, 400 rais @ Baht40,000.-	Baht16,000,000.-
5.3 Row-house, 2-storey, 240 units @ Baht50,000.-	Baht12,000,000.-
5.4 Asphalt road, 6.00 m. wide, accomodation roads, 4.50 m. wide, the total of 111,120 m ² @ Baht100.-	Baht11,112,000.-

5.5	Foot path laid with corrugated tile, 2.50 m. wide at both side of the 6.00 m. road, and 1.50 m. wide at both side of the 4.50 m. accomodation road, the total of 3,000 m ² @ Baht65.-	Baht5,200,000.-
5.6	Culverts	
	- road, 6 m. wide, use 0.60 concrete culvert and catch basin, 11,840 m. long @ Baht450.-	Baht5,328,000.-
	- road 4.50 m. wide, use 0.30 m. concrete culvert and catch busin, 33,600 m. long @ Baht250.-	Baht8,400,000.-
5.7	Waterworks, electricity outside the house, 2,960 units @ Baht3,000.-	<u>Baht 8,880,000.-</u>
	Total	<u><u>Baht82,920,000.-</u></u>

The following are the division of work in the land allocation of 400 rais,
200 rais in each province :

1. Allocate 74% of the land into small plots, 40 sq. wahs
each for hire purchase, the total of 2,960 plots or 296 rais
2. Reclaim the land by construction of road, market,
school and others, the total of 26% of the land or 104 rais

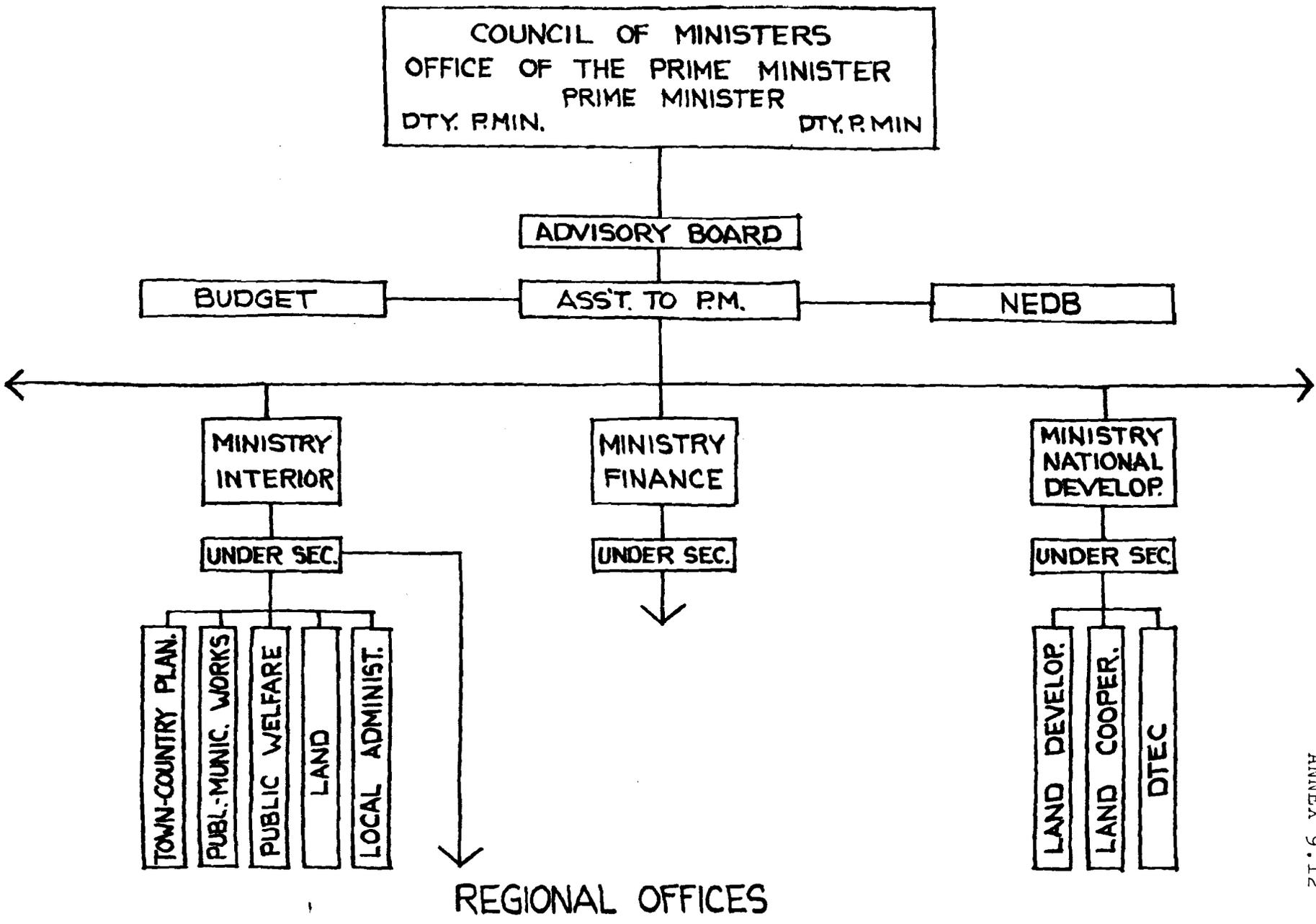
Cost of developed shops and land

- Cost of construction of shops, 240 units	Baht12,000,000.-
- Cost of reclamation of land, 296 rais	Baht70,920,000.-
- Cost of reclaimed land, 40 sq. wahs	Baht 23,960.-

Rate of hire purchase

A 15-year return of investment is employed in the set up of the rate which requires 180 monthly ~~in~~ installment with an addition 2% administration expenses without any advance requirement. The monthly installment is Baht156.- for 40 sq. wahs of the allocated land.

RTG ORGANIZATION IN RELATION TO HOUSING



SUMMARY LIST OF LOCALLY PRODUCED MATERIALS

Crushed Stone

Gypsum

Clays

Iron Ore

Lime

Cement

Asbestos-Cement Products

Pre-Cast Concrete Products

Sheet Glass

Brick and Tile Products

Timber

Plywood

Particleboard

Asphalt

Reinforcing Steel and Pipe

Pig Iron and Castings

SUMMARY LIST OF IMPORTED MATERIALS

Raw Asbestos

Special Cement Grades

Steel Sections/Shapes

Soda Ash

Plywood (thickness 1/2" or more)

Glues, Resins, Adhesives

Plastics

Electrical Equipment

Heavy Machinery

Appliances

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