

AN ABSTRACT OF THE THESIS OF

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Title FINANCING THAILAND'S ECONOMIC DEVELOPMENT PLAN
WITH SPECIAL REFERENCE TO THE CONTRIBUTION OF
AGRICULTURE

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Thailand may be called an underdeveloped country. The population of 26-28, 000, 000 people is increasing at a rate of three percent per year. Seventy-five percent of the people live in rural areas and agriculture, the most important occupation, contributes from 36 to 40 percent of the gross national product. Productivity and per capita income are low.

However, Thailand is a rapidly developing country that has the resources to develop much more.

The population density of 51 persons per square kilometer is only one-fifth that of Japan. Only 20 percent of the land area is cultivated, but an additional 15 percent of the total area could be brought under cultivation.

Thailand has large unused water resources. Lack of storage

causes the country to be very dry, or very wet and flooded, but new programs are providing multi-purpose dams which will store water for flood control and irrigation. The 10 million rai now under irrigation can be more than doubled. Irrigation will greatly increase productivity and make it possible to grow two crops per year. A wide variety of crops are grown.

The average level of education of the people is very low, but this is being corrected by new schools for the youth and extension programs for the adult farmers.

Much economic development has occurred during the past decades, but the first National Economic Development Plan was started in 1961 and will end in 1966. Under the Plan, many problems of education, health, community welfare and government administration will be reduced. The infrastructure of the economy will be built through public development investments in power, irrigation, communication, transportation, and community development.

The government has the policy of promoting industry and manufacturing through the private investment. From 1961 to 1963, gross fixed capital formation in the public sector increased by 700 million baht (\$1.00 U. S. = 20.8 baht) while in the private sector the increase was 3,500 million baht.

One of the principal objectives of the National Economic

Development Plan is the development of agriculture.

Fourteen percent of the expenditures under the Plan are for agriculture and cooperatives, but agricultural productivity will be benefited also by expenditures for communications, transportation, power, community facilities, and others.

The major share--52 percent--of the funds for development investment will come from the appropriation of government tax revenues. Foreign loans will provide for 22 percent and foreign grants for 11 percent.

During the first three years of the Plan, increases in agricultural production have been far in excess of targets in the Plan. Even with the conservative estimates of the Plan, increases in agricultural output should reach five billion baht per year by 1966. Exports of agricultural products should earn two billion baht per year. These estimates do not include any additional national income resulting from processing and handling of agricultural commodities. The growth in agricultural income will continue for many years after the end of the Plan as farmers learn to use new techniques such as irrigation, and as completion of projects permits irrigation of more land.

For the six-year period, Development Plan expenditures are expected to average 5.4 billion baht per year. Foreign grants and loans needed during the years of the Plan to balance international

payments range from 1.92 to 3.57 billion baht.

Given these magnitudes of investment, increases in agricultural output, and potential further increases, it can be concluded that increased production from the agricultural sector could provide the capital for financing the economic development of Thailand.

Whether this can be achieved depends upon the success of the administrators of Thailand's economic development in recognizing the potential and in coordinating the Development Plans.

FINANCING THAILAND'S ECONOMIC DEVELOPMENT
PLAN WITH SPECIAL REFERENCE TO THE
CONTRIBUTION OF AGRICULTURE

by

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FINANCING THAILAND'S ECONOMIC DEVELOPMENT
PLAN WITH SPECIAL REFERENCE TO THE
CONTRIBUTION OF AGRICULTURE

INTRODUCTION

Thailand lies entirely within the tropics and like the remainder of monsoon Asia, it is warm and moist and well adapted to rice and other crops. The rainy season or monsoon season arrives in May and continues through September or October with heavy rainfall for most of the country. During the six months dry period following the monsoon, very little land is cultivated other than under irrigation.

The highland which rims the North and the West of Thailand, creates a large watershed which drains into the flat central plain and the Chao Phya River system. The Northeast receives as much rain as the North, but, as in the North, cultivation of rice is made difficult by variable annual flooding, which quickly disappears through rapid runoff and seepage. The water is drained toward the Me Khong River. The South consists of a long peninsula with humid tropical climate, but it has more rainfall than other regions of the country.

Thailand, with an area of 321,250,000 rai^{1/}, is nearly as large as Washington, Oregon, and Idaho combined. An estimated 75

^{1/} Rai: A unit of land measurement. One rai is equivalent to approximately 0.4 acre or 0.16 hectare. One hectare is equal to 6.25 rai. One acre is 2.5 rai.

percent of the Thai population of 26 million lives in the agricultural areas.

Since the second World War, the Thai government has developed a growing appreciation of the need for agricultural diversification as a means to economic growth and expansion. The farmers are beginning to respond to favorable prices and are producing for the market as well as for their own needs.

To maintain its high position in Southeast Asia as a producer of desirable agricultural products, improvement of Thai agriculture must continue to meet the competition of neighboring countries.

The above statement reveals that the economic situation of Thailand is significantly dependent upon agriculture because the nature of its location and environment have provided a great deal of facilities to operate with. Most of the people live in the country where they have their own lands to cultivate, rather than in the cities.

It is obvious that the main income of the entire nation is derived from agricultural products. However, Thailand is very far behind in agricultural technology as compared with the Western countries. In order to develop the economy of the country, development of the agricultural system is necessary.

Economic development by means of agriculture will contribute greatly to large numbers of the population who can respond to it. It is generally known that most of the countries that have met with

success in economic development have first been successful in agricultural development. Industrial development usually follows the agricultural development in order to use the benefit from agricultural products. This case should hold true in Thailand, too.

One of the most desirable purposes in all countries over the world is the attempt to export products in order to be able to obtain the foreign currency required to buy the import goods needed to continue production. Thus, exporting agricultural products from Thailand appears to be desirable and necessary.

Thailand could produce more food if agricultural development is achieved in the country. Agricultural development is a long-term project but it is the most vital factor that will bring about successful national development. Increasing the agricultural exports, and restricting the import of luxury products may result in savings to be invested in development as a whole.

It is, therefore, necessary to increase the export of agricultural products as much as it is possible. The final outcome would cause an increase in saving, and this would result in more financial power to develop the entire nation.

Nature of the Problem Analyzed in This Report.

Accomplishment of economic development in Thailand is dependent upon various sorts of things, e. g. , capital, saving for

investment and expenditure for economic development. It is not feasible for Thailand to be self-sufficient in her present economic situation since she has a small gross national product and extremely low per capita income. Thailand, like any other countries in South-east Asia, is still underdeveloped from many points of view. However, there are quite a few possibilities, and these types of things, for instance, an excess of labor and an abundance of natural resources, could bring about the success of development.

Some of the greatest barriers in economic development in the country are lack of financial support, low level of education among the farmers and the shortage of qualified personnel to carry on the work. In spite of having many aids from various sources, the economic situation needs to be improved much further. At any rate, these aids have been small, considering the needs of the total population. Other incomes besides outside aid may be obtained from the saving of national income in the country itself. Other aspects that may contribute to success in economic development are:

a) The investment that may be made after the capital is saved from current production, or with borrowed capital to be repaid from future saving.

b) Borrowing is necessary for the Thai economy because savings from current income are too small to finance the development considered necessary.

c) The type of investments planned are expected to greatly increase the gross national product.

Savings in Thailand, before the National Economic Development Plan, were very small and a large part of savings were hoarded in the form of jewelry, or cash, which were taken out from circulation. These sorts of saving have never been used for investment. Another drawback has been the low per capita income and the low standard of living, which has been discussed before.

For these reasons, the Thai government can not develop the country by using only its savings. The only way to do it is by borrowing, or accepting the foreign gifts and grants for a period of time to encourage production. This will have the effect of increasing the per capita income and gross national product. By that period of time, the country may own more savings and will be able to conduct the necessary works from its own resources.

Purposes of This Study

The purposes of this study are:

1. To study the National Economic Development Plan of the Thai government which is designed to bring advancements to the Thai economy.
2. To study the sources of financing for economic development, both external and internal.

3. To determine whether development of the agricultural sector of the Thai economy can provide the capital necessary to finance the National Economic Development Plan.

Sources of Data

Data included in this thesis are derived from several sources. Most of the material and statistical data have been assembled from the various Government Departments of Thailand. Some were collected from private books concerned with Thailand, and some were from periodical, papers and journals. Sources also include Ph. D. theses, Master theses, United Nations books and U. S. Government publications.

AGRICULTURE AND NATURAL RESOURCES IN THE ECONOMY OF THAILAND

The agricultural sector serves in various roles. It provides a large part of the sustenance of the growing population. It also supplies a market for manufactured goods, a source of capital for industry, and a source of foreign income to pay for imported capital goods.

In underdeveloped countries, including Thailand, agriculture is the dominant occupation of the country. So far the country is still facing a lack of farm machinery, scientific methods and improved techniques, and these deficiencies must be cured.

In many circumstances, agriculture in Thailand uses little science and modern technology. The methods in production are the same as they were several generations ago. Human labor is used instead of farm machinery. Fortunately, Thailand is not deficient in natural resources. Land resources are relatively plentiful and fertile. The basic problem is not over-population as in other underdeveloped countries. However, the scarcest resource is management, especially the application of knowledge available elsewhere in the world to production problems.

In the last decade, Thai agricultural production has changed slightly. Some upland crops such as corn, kenaf, cassava, and sugarcane have become important cash crops to the Thai farmers. Rubber,

also, has become increasingly important as an export crop. See Table 1.

The Economic Survey of Asia and the Far East reported in 1961 that, "Thailand had notably gains in other food crops. Production of maize, which is exported to Japan as a livestock food, continued to expand rapidly. The area planted increased by 43 percent in 1960 and has trebled since 1957; production, at 542,000 tons, was 70 percent greater than in 1959 or four times the 1957 level. Both the area planted and the harvest were expected to increase further in 1961. Cassava, which is exported as meal for livestock to Europe and as starch to the United States, is increasing at a similar rate. Output reached 1.7 million tons in 1960 or four times the 1957 level, and further increases were expected in 1961. Centrifugal sugar production, at 140,000 tons, was 17 percent higher than in 1959/60," (45, p. 121).

The increased agricultural production may result from major changes in the resources used; for instance, opening new land, or making provisions for irrigation; from innovations in technology, such as the adoption of hybrid varieties, or new methods of fertilization; from sudden increases in prices resulting from new outlets or the failure of a crop in other countries; or they may result from deliberate governmental influence to implement a government policy (36, p. 1).

Table 1. Index of agricultural production, 1954-1963.

	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
	(1950-1953 = 100)									
Rice	79	101	115	77	97	93	108	113	128	140
Rubber	113	126	129	128	133	164	161	176	184	187
Other crops ^{1/}	168	184	260	305	313	373	425	354	308	490
Forest products	103	110	88	93	96	89	96	99	99	125
Fish	124	115	118	127	106	111	118	165	184	226
Total	587	636	710	730	745	830	908	907	903	1167
Average total	117	127	142	146	149	166	182	181	181	233

^{1/} Upland food crops, oil seeds, fiber crops and tobacco.

Source: Division of Agricultural Economics. Agricultural Statistics of Thailand, 1963. Bangkok, 1965. p. 29-37.

With the major importance of the agricultural sector, Thailand's export income is the most valuable in the government's revenue. From 1950 to 1954, Thailand was the largest exporter of rice in the world. Since 1954, it was exceeded only by that of Burma (17, p. 305). About one-third of all the rice produced in Thailand is exported. From 1954 to 1963, the value of total exports earned by the export of rice declined from 54 percent to 37 percent, which is shown in Table 2. The value of the export of rice did not change significantly during this period, but the value of total agricultural exports showed a large increase.

Other agricultural products--rubber, upland crops (corn, cassava, kapok, jute, and kenaf)--increased in value from 37 percent to 51 percent of total exports. It should be noted that in the next decade, with the government's policy of promoting and assisting their expansion, the upland crops will continue to increase. The proportion of the different crops will be adjusted to the world market's demand.

Agriculture is the most important industry. During the period 1957 to 1962, total contribution of agriculture ranged from 36 percent to 40 percent of the annual Gross Domestic Product^{2/}. Agricultural products are also the main exports of the country.

^{2/} For more detail, see Appendix Tables 1 and 5.

Table 2. Percentage of total exports, 1954-1963.

Items	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
Rice and rice products	54	46	43	50	48	36	31	37	35	37
Other agricultural products	37	44	51	39	45	55	60	53	58	51
Total agricultural products	91	90	94	89	93	91	91	90	93	88
Non-agricultural products	9	10	6	11	7	9	9	10	7	12
Total domestic export	100	100	100	100	100	100	100	100	100	100

Calculated from Agricultural Statistics of Thailand, 1963. p. 20-24.

From 1954 to 1963, agricultural products made up from 88 percent to 94 percent of the value of total exports. See Table 2.

Land Resource

A large area of unsettled land has given Thailand an opportunity to expand or increase land cultivated. Of the 321,250,000 rai, only 70,495,000 rai or 21.9 percent of the total area was classified as farm land in 1963; 165,443,000 rai or 51.5 percent was forest and grazing land; 1,295,000 rai or 0.4 percent was swamp and lakes, and the rest of it, 84,017 rai or 26.2 percent was unclassified. See Table 3.

During the past half-century, for which data on land used are available, there has been a constant expansion of farming into virgin timber and pasture land. The area planted to paddy^{3/} expanded from an average of 11.3 million rai during the years 1907-1916 to 45.5 million rai in 1963-64 (26, p. 40). In recent years, the area planted to upland crops has expanded even more rapidly. Area planted to all crops except rice increased from 5.0 million rai in 1951 to 14.4 million rai in 1963 (26, p. 28). On the basis of land classification, it has been estimated that an additional 50 million rai

^{3/} Paddy: The plant or the unhulled grain from which rice is milled. In this thesis, the term rice is used to mean either paddy or rice.

Table 3. Land utilization by geographical zones, 1963.

Items	North		Northeast		Central		South		Total	
	1,000 rai	%	1,000 rai	%	1,000 rai	%	1,000 rai	%	1,000 rai	%
Land in farm	4,034	7.30	22,726	21.36	30,350	26.38	13,385	30.51	70,495	21.94
Forest and grazing land	42,008	75.97	42,461	39.91	57,576	50.04	23,398	53.34	165,443	51.50
Swamp and lakes	19	0.03	396	0.37	255	0.22	625	1.42	1,295	0.41
Unclassified: road, highways, river, canals, urban, railway, etc.	9,867	16.70	40,808	38.36	26,882	23.36	6,460	14.73	84,017	26.15
Whole kingdom	55,928	100.00	106,391	100.00	115,063	100.00	43,868	100.00	321,250	100.00
Percentage	17.40		33.12		35.82		13.66		100.00	

Source: Division of Agricultural Economics, Agricultural Statistics of Thailand, 1963. Bangkok, 1965. p.163.

could be brought under cultivation (38, p. 4).

The land in farms in 1963 was classified into:

- a) Cultivated area - 62,303,000 rai
- b) Farm wood land - 4,224,000 rai
- c) Miscellaneous - 3,968,000 rai.

The central region which has 35.8 percent of the total land area has more land suitable for rice growing than other regions of the country. It is called the rice bowl of Thailand, and typically produces approximately 50 percent of the total production.

The Northern region, with 17.4 percent of the total land area, has large areas that are suitable for forest only. In spite of having a small area of crops, the yield per rai is much higher than the other regions. Except for the shifting cultivation of the hill tribes, the farming in the region is located in narrow valleys with fertile soil. A high percentage of the area in these valleys is irrigated. This artificial irrigation, coupled with the new techniques and a farming system that provides them the opportunity to plant two crops per year, makes these areas among the most productive farms in Thailand.

The Northeast, with 33.1 percent of the total area, is characterized by dry land and insufficient water. Upland crops are the only crops that can grow well in much of that region. However, it still has some rice fields. These rice fields vary greatly from year

to year with rainfall. It is expected that after the completion of the Me Khong multi-purpose dam project and the many small projects, the region will be supplied with an abundance of water, and at that time, the author believes that Thailand will obtain a great deal of benefit from this region.

The Southern region has 13.7 percent of the total area. This region especially has more rainfall than the other regions. High forests are common on the poor sandy loams and sandy clay loam soils. Rice production serves only for local consumption. Rubber grows well and also coconut, and certain kinds of fruit plants. Minerals are also found in this region. Most of the income is earned from rubber and minerals--principally tin.

Land at the present time is owned and operated by a large number of individual farmers. By tradition, when the land owners die, they distribute their land to their children. This practice has been going on generation by generation. If this tradition is continued among the farmers, the size of farms will continue to decline unless the government establishes some controls.

Another influence in land management is that some land still is unused by the people who own it because they expect that this land might be in higher demand in the future. They save it as virgin lands and expect to sell it for a higher price in the future.

In some areas, tenancy is increasing among farmers. A

study of the relationships between land tenure and rice production in five central provinces in 1964 by the Land Policy Division of the Land Development Department can be summarized as follows:

1) Approximately 41 percent of the farmers under survey were land owners, 56 percent were tenants, etc.

2) Almost all tenants had no security against the high rate of interest and unsuccessful cropping in their agreements with the land owners. Moreover, the yield of production is low because of insufficient labor and equipment. Small farms also cause low efficiency in farming. These things force the income of the tenants to be at a low level and cause the tenants to be in debt. The Land Policy Division in its report recommends that the government should help them have a better chance in earning a living. This could be done by distributing virgin land to give them their farms, helping them to improve the efficiency of production, providing for credit, insuring the price of a product, and so on (37, p. 1-14).

Climate and Water Resources

Thailand not only has a large area of land suitable for cultivation, but also has large, unused water resources. Great quantities of water flow away to the ocean every year during the rainy season with no beneficial use, but the land soon suffers from drought in the dry season.

Since Thailand lies entirely within the Tropics, the weather is warm and moist, or warm and dry. Every year, Thailand has two monsoon seasons. During November to February, the Northeast monsoon brings cold and dry air from the Chinese mainland to Thailand; and from May to September, the Southwest monsoon brings a stream of warm and moist air from the Indian Ocean which brings heavy rainfall throughout the country.

The long-term average rainfall varies as follows among the regions and the years:

Region	m. m.
Northern	900-1,800
Northeastern	900-2,300
Eastern	1,500-3,300
Central	800-2,300
Southern	1,500-4,900

The temperature varies from region to region and during the year. In the Central, Northern and Northeastern regions, the average temperatures range from 55^oF to 100^oF, approximately. In the humid Southern region, the temperatures are generally mild throughout the year. The average temperature ranges from 71^oF to 91^oF.

Rainfall for all regions averages 1,390 and 1,590 m. m. , approximately, for the wet season, and the whole year, respectively. Almost 80 percent of the rain falls within a period of six months.

Consequently, rice and other crops have to be planted during the wet monsoon months. During the dry period, it is possible to plant crops only if irrigation is practiced.

Irrigation is making an important contribution to agricultural productivity in Thailand. It has been practiced for 60-70 years since the policy was first emphasized by supplying water for cultivation. At the present time, irrigation policy has shifted to multi-purpose policy, for instance, storage of water, drainage, flood control, hydroelectric power, etc.

Agricultural products have been transported by the waterways to the market for many years because of insufficient roads and because of its cheaper costs. At the present time, water transportation is still widely used in areas where the highways are not available, or during the wet season. The Royal Irrigation Department has investigated the cost of transportation by means of waterways, railways, and highways, and found costs to be in the ratio from 1:2:5 to 1:3:10.

At the end of 1963, the total of irrigated areas was 10.41 million rai. Most of the areas under water control systems are in the Central plain. The major projects are the Greater Chao Phya, Bhumipol Dam, Kang Krachan, Lam Pao, Lam Pra Plerng, Me Tang, Me Klong and Tha Pla project.

One of the large, concrete structures will be built at the Nan

River in Uttradit. It is expected that this dam can impound about 8,000 million cubic meters of water annually. In addition, the construction of the Dike and Ditch project and Subsidiary Drainage project will make it possible to control floods, and to stabilize the supply of water throughout the cultivation season, bringing a stabilized yield every year. It is expected that in 1966 the irrigated area will increase to 11.3 million rai. The great extension of irrigation will provide the basis for fuller development of agriculture in future years. The major irrigation projects, which are under construction or in an advanced stage of planning, will provide controlled irrigation to another 10 million rai.

Another benefit resulting from multiple purpose projects is hydroelectric power. It will provide all kinds of facilities, and may encourage the establishment of agricultural processing industries in the future.

In the years 1961-1963, 10.5 million or slightly less than one-fourth of all rice planted, was on land classified as irrigated. The expansion of irrigation works will also increase rice production by permitting some farmers to grow two crops of rice in the same year. Details on current rice production under irrigation are shown in the Appendix Table 2.

Human Resources

The population census of 1960 indicated that Thailand has a total population of 26,257,916. This is equivalent to 51 persons per square kilometer for the total area of its Kingdom. Compared with Japan, the Japan Statistical Yearbook, 1960, showed that the density of population per square kilometer is 252.7 persons (13, p. 11). The population census also showed that 19,587,705 of the population, or 75 percent, are engaged in agriculture (35, p. 2). Population has been increasing at the rate of three percent per year.

Education among the farmers is a most urgent need. Most of the farmers who are poor and live in remote places fail to send their children to school for they, themselves, have no basis for encouraging the younger generation to realize the importance of education. The government has tried hard to place schools in all possible communities in the rural areas, but its efforts have been limited by a lack of financial support and the number of the teachers that are available. Even if the farmers realize that they should send their children to school because of compulsory education, they need them at home to assist in the farm work. Only well-to-do farmers can afford to encourage their children to obtain further education. When farm youths do obtain higher education in colleges or universities, they usually turn to other occupations, and never return to

improve their own land. This has been true for a long time.

The goal of the government today is to create a farm extension service to teach new techniques of farming, as well as a better way of living to the adults now on farms.

The following results of a statistical survey in 1954 shows the percentage of different age groups of farm operators who had never attended school.

Age in years	Percent that had never attended school
45-49	65.8
40-44	56.8
35-39	45.8
30-34	34.5
25-29	19.5 (24, p. 3).

These data indicate that progress has been made and that younger farmers should be better able to learn new techniques.

It is generally recognized that education is of primary importance to the development of the country. In Agriculture, the farmers may respond in varying degrees by trying new methods depending on how much education they have obtained.

Agriculture in Thailand, regardless of the education of the farmers has grown very slowly. This is due to the fact that managers of farms receive their training and knowledge from their elders and, therefore, are likely to run their farms the same way

as the former generations did. These farmers are short of education, and have never received suggestions from new technicians on how to develop the economic situation in the country by means of agriculture. By this time, the government will support other facilities to assist the farmers, for instance, loans, land reform and machinery that is necessary on the farms for better production.

The average number of days worked on the farms per family worker was only 100, and an additional 50 days per worker were spent doing off-farm or home industry work. One Thai farmer can feed only two persons including himself. In the United States, every person engaged in farming is currently providing the food, fiber and tobacco needs for himself and 19 other persons, including the exporting of quantities of cotton, wheat, tobacco and other farm products (5, p. 2). What the government should do with this problem is an additional problem.

The economic farm survey of 1953 has found that the average farm income was 4,996 baht^{4/} including the value of farm products used at home, 1,755 baht, and non-farm income, 1,756 baht. The average expenditure was 2,877 baht per family, leaving a difference of 2,119 baht to use for living, buying capital goods, or for saving.

^{4/} Baht: A unit of money. Approximately 20.80 baht equivalent to \$1.00 U.S.

With such incomes, the farmer will never make any progress. Since agricultural credit is not available to everyone of the farmers, they, therefore, are not able to use the benefit from it, or use it for farm productivity.

PLAN FOR ECONOMIC DEVELOPMENT

Agriculture is the most important industry of all underdeveloped countries, including Thailand. Economic development of these countries necessarily begins through agriculture. In regard to stages of economic growth, in general, agricultural progress precedes industrial progress. The main reason for developing agriculture prior to industry is that most of the factories established would have to rely upon agricultural products for their raw material. The raw material must be sufficient in quantity and satisfactory in quality. Moreover, industrial progress must depend on the vastness of the market which in turn depends on two things, i. e. , the productive power of the producers and the purchasing power of the people. Neither of these could exist if a majority of the people remain poor or subsistence farmers, having insufficient income to buy manufactured products (1, p. 6).

However, the Thai government does not neglect investment in other industries, but it puts its emphasis on private investment in industry rather than public investment. This, by no means, implies that industry is unimportant to an agricultural economy like Thailand's. In fact, it means that the emphasis should be put primarily on the activity that can best be done.

The first National Economic Development Plan places

emphasis on agriculture. The projects and related measures are wholly involved with agricultural development. Other projects, such as transport and communications, power and community development are closely associated with agriculture.

The Plan was divided into two periods, 1961-1963 and 1964-1966. The major reason for the division was to be able to apply the experience gained during the first period to improving the planning for the second period.

The major goal is to increase the per capita income of Thailand at a rate not less than three percent per annum. The expansion of economic activities in the private sector through public development expenditures in power, irrigation, communication, agricultural extension, community development, education, public health and various social services is the key development policy (38, p. a).

The Development of Agriculture

Thailand's economy depends heavily on agriculture with over one-third of the national income earned from agriculture, and about four-fifths of the country's total working population engaged in agricultural employment. Moreover, a high percentage of total exports are agricultural products. These are produced with methods that are still primitive. The government tries to improve these

methods by setting up a plan to develop agriculture which is summarized in the following statements:

Objectives and Implementation

The policy of agricultural development can be summarized under eight objectives:

1) To expand agricultural production and exports; to improve the quality of important farm products; and to diversify output in order to achieve increased national income and a higher per capita income for the country's agricultural population.

2) To improve production techniques so that the yield per rai, and income from production will be increased.

3) To develop the natural resources which are available to agriculture, such as land, forest, water, etc., and bring these efficiently into the production system and establish methods for conservation of resources.

4) To improve the social conditions of the farmers so they will enjoy a higher standard of living and also share in welfare services. The government also aims for a strong sense of national unity and cooperative spirit among farmers.

5) To promote the agricultural institutions, such as a sound system of land tenure, marketing, cooperatives, young farmers and farmers' associations, agriculture credit and others,

to be strong and smoothly operating.

6) To promote the status of agricultural employment economically and socially, and to stimulate commercial activities in agricultural products.

7) To assure that farmers receive fair remuneration for their labor and protection from disadvantages in marketing, leasing of land, and loans from private lenders.

8) To expand the quantity and quality both in the official jobs and public enterprises which aid farmers.

Implementation of these policies will be accomplished by:

1) The building of the agricultural infrastructure, such as irrigation, power, transport, and communications. Examples of irrigation include the large storage dams in the Northern region such as the Bhumiphol Dam in Tak province, Tha Pla Dam in Uttaradit province, the diversion dam across the Me Klóng River in Karnchanaburi province, and other dams, including reservoirs and water-tanks in the Northeast region. Water development also provides benefits in electric power and flood control. Construction of national highways and feeder roads in the provinces will, also, contribute significantly to agricultural development.

2) Agricultural research facilities will be improved and expanded. Agricultural centers will be built up in every region, combining every branch of agriculture. The first started will be in

the Northeast and Central regions. Existing stations will be improved and, if necessary, new stations built. Apart from the agricultural centers, the Rice Disease Institute, the Animal Health Institute, the Soil Fertility Institute, the Fresh and Sea-Water Biological Institutes and others will conduct research and experimentation on crops and animal breeding, control and eradication of crops and animal diseases, soil and fertility use, and the use of irrigation water.

3) The Ministry of Agriculture will improve and expand the Agricultural Extension Service. Centers will be set up in each region for coordinating departments. However, agricultural extension's dependence upon local needs and conditions will be taken into consideration, including the market demand for the local products. In the irrigated areas, cropping during the summer will be encouraged, to use resources for two crops, and also the improved seed of rice will be distributed to the farmers.

4) In animal husbandry, efforts will involve promotion in raising beef cattle, dairy cattle, buffalo, swine, and poultry with regard to the best breeds, and increases according to the internal and external market's demand. Efforts will be made to control and eradicate animal diseases.

5) In the field of fisheries, fresh-water and marine fishing will be promoted. It is also desired to promote fish-farming in

ponds and rice fields with modern equipment and techniques.

6) In the field of forestry, steps will be taken to conserve the watershed area and preserve forests. Forest control and protection units will increase. Forest plantations will be established in the suitable areas. Research will be conducted on forest products and their economic utilization.

7) Cash crops in good demand such as corn, oil seeds, coconut, cotton, and rubber will have priority in promotion.

8) Improvements in the land tenure system are designed to assure the present average of 25 rai per farm, and farmer ownership of land. Distribution of land will be carried out through cooperatives.

9) Marketing facilities and services will be promoted to assist farmers in improvement of their marketing system, improvement of transport from farm to markets, establishment of the standardization of agricultural products, and stabilization of prices.

10) The agricultural credit system will be encouraged, and, particularly, the government will encourage farmers to save in order to have sufficient funds to finance their farms.

11) It will be necessary to obtain longer budget appropriations to reach the technical manpower and strength required for extension and other trained personnel.

Targets

The increase in production that is anticipated under the plan will result partly from the expansion of cultivated areas and partly from increasing the productivity. Problems of setting these targets are due to the lack and unreliability of agricultural statistics available.

Table 4 shows the targets for increasing agricultural output, 1961-1966, for which the detail will be discussed in the next chapter.

Industrial and Mineral Development

It is necessary to expand industrial production to meet the increasing demand for industrial products every year. However, the country is still lacking a base for industry to grow on, for instance, power, management experience and techniques, and a survey of the natural resources and raw materials available. At the present time, Thailand still lacks heavy industry, but a total of approximately 28,000, small industrial establishments employ 3.5 percent of the economically active population. Manufacturing is responsible for approximately 13 percent of the country's total output (38, p. 83).

Objectives

The objectives of the industrial development plan can be

Table 4. Planned increases in agricultural output, 1961-1966.

Item	Production		Index 1961 = 100
	1961 Actual	1966 Target	
<u>Crops (tons)</u>			
1. Rice	8,247,000	9,500,000	115
2. Rubber	186,100	210,000	113
3. Maize	598,000	750,000	125
4. Kenaf and jute	350,900	200,000	75
5. Tapioca	2,012,500	2,200,000	109
6. Soya beans	24,200	35,000	145
7. Mung beans	41,000	66,300	162
8. Ground nuts	107,900	167,000	155
9. Cotton	38,300	70,000	183
10. Castor beans	32,800	45,650	139
11. Sesame	12,400	22,500	181
12. Tobacco leaves	48,400	55,000	114
13. Sugar cane	3,984,000	4,000,000	100
14. Coconut	1,042,000	1,600,000	154
15. Kapok	231,000	270,000	117
<u>Fisheries (tons)</u>			
1. Fresh-water fish	72,000	80,000	111
2. Marine fish	233,000	300,000	129
<u>Livestock (head)</u>			
1. Buffaloes	5,400,000	5,670,000	105
2. Cattle	3,800,000	3,990,000	105
3. Swine	3,800,000	4,180,000	110
4. Ducks	6,600,000	7,000,000	106
5. Chickens	44,000,000	50,000,000	114
<u>Forest Products (cu. m.)</u>			
1. Teak	105,665	100,000	95
2. Yang	319,482	300,000	94
3. Other timbers	857,781	1,000,000	117
4. Fire wood	1,317,325	1,350,000	102
5. Charcoal	762,330	800,000	105

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 56.

summarized as follows:

1) To encourage the private investment sector--both domestic and foreign--to invest in industry according to the Industrial Promotion Act of 1962. The government will not create new activities in competition with private enterprise, but it is going to improve the efficiency of the existing state-operated enterprises. There will be state interference only in regard to quality and standardization control. Moreover, the government will try to support services such as transport, communication, marketing and technology.

2) To survey and analyze natural resources for the new industries and mines in order to create the way for heavy industry, such as the chemical and ore-smelting industry.

3) To promote and support home manufacturing by providing technological, financial and marketing information.

Targets

The Plan states that the industrial sector will be encouraged, specifically in heavy industry. Some industries can export to foreign countries, such products as tires or bicycles and fiber products, for which the raw materials come from agriculture. Some industries still need the raw material from abroad, such as machined products. However, it can be said that industry is going to play a role in the economy of Thailand.

Tables 5 and 6 show the targets estimated in 1966 compared with the actual in 1962.

Development of Power

Power is another factor that needs to be developed.

Thailand today still lacks electric power. It usually gets its electric power from thermal and diesel plants which have a high cost. Many people have privately-owned plants which are installed to meet the needs of individual establishments in the absence of a sufficiently reliable supply from public sources. Thailand also lacks fuel, such as oil or charcoal, to produce the electric power at a cheap price, but it can produce by hydroelectric potential offered by the water and from lignite. This plan tries to use the sources which Thailand has to produce power by starting the Bhumiphol Dam project at Tak province. This dam is designed for multi-purpose use since it will provide irrigation and electric power. Besides, the government has created many projects to produce electric power, such as the Lignite Authority at Krabi province, Northeastern Electricity Authority, and so forth.

Objectives and Implementation

- 1) To promote the development of power from water resources in each region. Transmission and distribution systems will be spread out as soon as possible.

Table 5. Industrial output of selected industries, actual 1962, and estimated 1966.

Industries	Unit	1962	1966
Sugar	Ton	151,000	160,000
Automobile assembly	Nos.	2,100	3,000
Glass	Ton	24,000	27,000
Paper	Ton	5,860	15,000
Cement	Ton	965,000	1,500,000
Chemical fertilizer			
a) Ammonium sulphate	Ton	--	60,000
b) Urea	Ton	--	30,000
Automobile tires	Nos.	--	140,000
Gunny bags	Nos.	11,000,000	35,000,000
Cotton textiles	Sq. Yards	109,000,000	190,000,000
Tobacco (cigarettes and cigars)	Nos.	10,500,000,000	14,000,000,000
Refined oil	Barrel	--	13,900,000

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 94.

Table 6. Mineral output, actual 1962, estimated 1964-1966.

Item	1962	1966
	Metric Tons	
1. Tin-in-concentrates	14,800	20,700
2. Lignite	195,000	440,000
3. Gypsum	21,000	33,000
4. Iron ^{1/}	45,000	25,000
5. Lead	5,500	10,000
6. Wolfram	200	200

^{1/} Iron production will decline because work was stopped at Koi Samui since 1963.

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 86.

2) To improve the rate of unit cost to encourage industry and household use of electricity.

3) To coordinate the Provincial Electricity Authority, amphur^{4/} and community systems with private owners outside the electric projects in order to supply power at a low cost per unit.

For the implementation, the government has the following plans:

1) Survey and investigation will be undertaken for estimating the amount and the value of production. Construction will be taken to assure the low cost of electricity per unit.

2) Coordination and unity will be sought to promote all the electric power systems in each region.

3) The government will try to encourage the private authorities in the provinces, amphurs and communities which are outside the electricity project to be under the rate control of the government.

Targets

The targets of the Plan show that the generating capacity will exceed the estimated demand in 1966. The generating capacity and the demand estimated will be 1,335,690 and 1,044,890 thousand kilowatt-hours, respectively (38, p. 105).

^{4/} Amphur: A political subdivision similar to a county.

Transport and Communications Development

Some economists have indicated that Thailand could not progress because of the lack of transport and communication facilities. The other developments will be retarded if transport and communications do not improve and expand. The Plan concentrates on the maintenance and improvement of the existing roads more than construction and expansion.

Objectives and Implementation

The objectives can be summarized as follows:

- 1) To rehabilitate low quality highways in the amount of 6,100 kilometers and construct 720 kilometers of new highways.
- 2) To construct and maintain provincial highways in order to make them usable throughout the year.
- 3) To improve the efficiency of the State Railway system and increase the capacity of railway transport.
- 4) To improve the water ways, both in the center of the country and at the Port areas. Agricultural products make heavy use of water transport to get to the markets. Improvements also included for the Port of Bangkok include dredging operations and a silt precipitation survey. The survey will also be taken for the proposed new port at Sriracha.

5) To improve and expand air transportation. The domestic and international airports will be improved to improve the country's position in international aviation.

6) To improve the efficiency of communications and expand services throughout the country. These will include post, telegraph, telephone, radio, telex, and telecommunication.

Targets

The transport and communication developments will not be finished within the six-year national economic development plan because it is a long-term development project. However, the targets would be as follows:

1) Highway and feeder roads--by the year 1966, the amount of 3,700 kilometers of national highway will have been surveyed, and 1,830 kilometers will either have been improved or constructed.

2) Under the provincial highway, 1,000 kilometers will have been surveyed and between 700-1,000 will either have been improved or constructed by 1966.

3) The railways will have undertaken construction of the new route between Korat and Port of Sriracha to facilitate the flow of goods between the areas of the Northeast by 1976.

4) The waterways will be increased by continued dredging of river beds and other facilities.

5) Air transport and communication systems will be improved and expansion in the facilities through the country by 1976 is expected.

Development of Community Facilities and Social Welfare

In the development of community facilities and social welfare, the main objective is to raise the level of well-being of the population. It can be done by increasing the opportunities for economic and social advancement. The government aims to help the people who could not help themselves, such as orphans, homeless children, juvenile delinquents, and, also, drug addicts, beggars and prostitutes. Moreover, it will reduce the population's economic and social vulnerability to subversion and bring peace to the nation during the uncertain period, particularly, in the Northeast of Thailand at the present time.

Objectives and Implementation

1) In the field of public welfare, self-help land settlements will be provided for those inhabitants who cannot help themselves, including the hill tribes. Medical cases and occupational cases will be provided encouragement and assistance to get jobs as much as the government can give. The programs are also concerned with provision for facilities, such as reasonable wage rates, communications service, etc. The government will provide for the poor's

housing, and training to develop leadership and understanding of the government's policies.

2) With the public services, waterworks will be provided and expanded to satisfy the demand and give the security of clean water. Town planning, roads, sewage systems, and slum clearance will be organized both in Bangkok and some rapidly developing provincial towns. The last thing, the government will be providing is the money to support local government's development by the central government grant-in-aid.

Targets

The government will try to work as rapidly as it can to open the rural areas which have been almost out of communication, to achieve increased well-being in economic and social welfare. In some parts, such as in the Northeast, the South, and along the border area, which are unsafe because of the danger from communism, the government will rush to provide the community development and welfare services before they find the tragic conditions which force them to behave in a manner opposed to the government's policies.

Another problem exists with the hill tribes which very seriously threatens the natural resources of Thailand. They always use the hill land to plant crops and then shift to another place. They do not

know how to fertilize the land and do not understand what will happen after they destroy the forests. The government will provide for the hill tribes' land settlement, hill tribes' development centers, and make provision for more training in new agricultural occupations by intensive methods.

Public Health Development

Public health services in Thailand have improved considerably within the past two decades. The number of doctors per inhabitant has increased--1 per 13,600 in 1947 to 1 per 7,100 in 1956. In 1957, the number of doctors in Bangkok was 1 per 1,100 of population compared with 1 per 30,000 in the rest of the country (12, p. 154). However, with that proportion, Thailand is still inadequate in the number of doctors, and also in the number of nurses, hospitals and other medical facilities.

Objectives and Implementation

- 1) To provide more medical care service.
- 2) To promote health for all the Thai people by systematic control of communicable diseases, provide for better sanitation, and provision of better maternity and child welfare services.
- 3) To train doctors, nurses, and other technical personnel in new technology.

4) To expand the number of doctors and medical service-men, and provide for more research and experimental laboratories, and for more hospitals.

For the implementation, the government has the following plans:

1) Curative Services. The Plan will establish and improve the hospitals both in Bangkok and in the provinces, particularly in the highly populated areas, and raise the regional hospitals to be a center for each region. The number of beds, doctors and staff members will be raised.

2) Preventive services. To expand the work of control, protection and eradication of such diseases as malaria, tuberculosis, plague, yaws, leprosy, and filariasis. Headquarters for the work will be at the disease control center, and the border areas will be served by mobile units. The promotion of health through individual sanitation, school, maternity, child welfare, and nutrition will be coordinated with the other development services. For the improvement of health that will be carried on in the future, the provincial headquarters will serve as a health center to provide a sufficient supply of nurses, local health officers, and follow-up health-workers.

3) Medical sciences will produce the medicine for all hospital and provincial health centers under the coordination of the pharmaceutical plant.

Targets

The ratio of beds to the number of population will be decreased from 1 per 3,700 in 1963 to 1 per 2,800 in 1966. At the same time, the number of doctors and nurses is expected to be raised from 538 and 1,267, to 778 and 1,867, respectively. The ratio of doctors, nurses and beds will then be 1:2.4:13 (38, p. 131).

Educational Development

Almost all of the Thai people are uneducated. The plan for development can not succeed if they continue to lack education. Education plays a vital role in each of the development sectors. In the development period, the government needs to increase the education of its manpower so as to enlighten it, so educational development has to be closely associated with manpower planning.

Objectives and Implementation

1) To distribute education for the youth, the government will attempt to improve and expand lower elementary education from four to seven years throughout the country.

2) To expand and improve the level of secondary education for the creation of all levels of skills required to meet the urgent needs of the country and to raise the standards of secondary

education, while emphasizing the kind of education which is necessary for the country.

3) To provide for more qualified teachers and attempt to raise the educational level to improve their efficiency.

Implementation will include the following activities:

1) The educational plan will be fitted closely to the rate of increasing population each year. To distribute education, 200 village schools per year will be set up during 1964-1966 in an area where no school exists.

2) Improvement in efficiency of the schools will give priority to the first line of the country's needs. It can be done by assembling and keeping under constant review data on manpower requirements. The need to train many more teachers will receive special attention.

3) Improve the educational level for all levels of education and provide opportunities for every one who needs more study or can do more. In the private schools, which can handle a large amount of the youth population needing opportunities to study, the government will attempt to improve the standard of each school, and give support by providing qualified teachers and giving some school equipment.

4) Priority will be given to planned and concentrated efforts to create a manpower source on the secondary, vocational and

university level which will raise the level of education for all. Assistance for the development project will be available by allocating financial resources, such as those from appropriations, borrowing and grants or gifts from outside of the country.

Targets

From the National Plan, the target can be concluded along the following statements:

1) Elementary education will be available for all children and compulsory education should be expanded to seven years for all children by the end of 20 years. Provision of adequate teachers to provide adequate staff for the schools now offering the fifth, sixth and seventh grades would require an additional 1,500 teachers per year.

(2) Improve and expand the secondary educational level to allow all the students who want to study at this level to do so. Moreover, it will expand the lower secondary level (M. S. 1-3) through the major amphurs and the upper level (M. S. 4-5) will be made available in major provinces.

3) Vocational education will be particularly emphasized by the government so that it will interest an increasing number of students in this field instead of the general studies.

4) University level training will also be expanded in the region

of Thailand, specifically, in the field of engineering, medical science, and agriculture.

The Development of the Role of State Enterprises

The role of state enterprises is one of most significant importance in the nation's economic development. The state enterprise sector accounts for a significant proportion of the domestic resources which are ready and available for development, and are a large share of the total public development spending program. It is expected that during 1964-1966, the state enterprises will invest from their own resources and from budget appropriations, foreign loans and grants, the total of about 4.8 billion baht, which is a little less than one-fourth of the total planned development expenditure (38, p. 153).

There are 45 large scale state enterprises which are significantly important to the Economic Development Plan. The rest of them have been ignored in the Plan because they are small and do not deal with economic development.

The government has a firm policy that allows all private enterprises to be controlled by themselves, and has no intention of competing in these areas. The state is also ready to transfer its own enterprises to private sectors in any reasonable cases. The state may reserve only those enterprises that are extremely important

to the population as a whole.

Implementation

1) The National Economic Development Board will serve as the central administration and cooperative and will follow the policy or the aims of the state enterprises.

2) The state enterprises will be encouraged to prepare for a long term investment program integrated with production and marketing plans.

3) The operation and performance of state enterprises will be evaluated in relation to the expected aim of the Plan that has been established.

4) The state enterprises that can not be self-supporting but must depend on the annual budget must be investigated and evaluated in order to improve efficiency.

5) Consideration of combining units of the state enterprises that perform similar functions will be part of the Plan.

6) A careful survey and investigation must be undertaken when a large financial investment will be required to establish a new state enterprise.

7) In order to get the most effectiveness out of a state enterprise, it is necessary to have qualified and well-trained people to operate it.

Targets

It is expected that all enterprises will be improved and will achieve more output during 1961-1966 except the long-term-project enterprises. Some of these enterprises may be divided into:

a) Agriculture--Cold Storage Organization, Forestry Industry Organization, Fish Marketing Organization and Rubber Plantation Organization will show increases in gross sales from 1961 through 1966 of 47, 15, 33, and 82 percent, respectively.

b) Transport and Communications--The State Railways, Port Authority and Thai Airways will gain 12 percent approximately from 1961-1966 in passengers and freight. The Telephone Organization will increase a great deal, approximately 84 percent from 1961-1966.

c) Power--Power generators installed by 1966 should increase the output of the power system by more than 100 percent of 1961 production.

d) Industry--The Weaving Organization, Thai Plywood Co. , Ltd. , and Battery Organization are expected to have the greatest increases in growth among the state industrial enterprises.

CAPITAL NEEDS AND FINANCING OF ECONOMIC DEVELOPMENT IN THAILAND

The sources of capital for the financing of the Thai government are revenue from taxes, surpluses from state enterprises, internal and external borrowing, and foreign gifts and grants. The government could not finance economic development by itself. If Thailand wanted to use only its own financial resources, it might have to wait for a long time to accumulate sufficient capital. The government realized this problem and changed its policies to obtain some money by borrowing and foreign aid, because at the beginning of the development plan, the government needed a large amount of capital for investment. However, in the next decade, the results from the government's investment in the development project will begin to yield large amounts of money from many sectors, such as, the revenue from exports, the increase in per capita income which will bring an increase in taxation and an increase in national income from the general growth in the economy.

Distribution of Planned Expenditures

Expenditures under the development plan are divided into eight sectors. Table 7 shows how much money will go to each sector year by year. The percentage allocated to each sector will be:

Table 7. Six-year development plan expenditures by sector and by fiscal year, 1961-1966.

Sector	First Half		Total ¹		Second Half		Total		Grand Total
	1961	1962	1963	1961-1963	1964	1965	1966	1964-1966	
	396.32	582.74	667.54	1,646.60	712.60	1,171.62	1,090.74	2,974.96	4,621.56
Agriculture and cooperatives	411.84	409.94	575.16	1,396.94	480.96	427.70	287.83	1,196.19	2,593.13
Industry and mining (including commerce and services)	674.84	784.66	1,072.28	2,531.78	870.41	642.03	285.19	1,797.63	4,329.41
Power	873.14	1,098.43	1,253.03	3,224.60	1,981.38	2,339.24	2,684.59	7,005.21	10,229.81
Communication and transportation	309.82	533.56	879.03	1,722.68	1,263.06	1,206.90	1,275.15	3,745.11	5,467.79
Community facilities and social welfare	71.03	155.31	163.24	389.58	238.76	347.18	388.60	974.54	1,364.12
Public health	178.20	250.92	256.13	685.25	401.03	580.90	824.11	1,806.04	2,491.29
Education	158.33	257.25	345.21	760.79	364.00	286.00	150.00	800.00	1,560.79
Unallocated	3,073.52	4,072.81	5,211.89	12,358.22	6,312.20	7,001.27	6,986.21	20,299.68	32,657.90
Total									

¹Data for 1961-1963 include Central Government transfer to public enterprises for repayment of debt and payment of customs duties and business taxes amounting to 681 million baht.

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966, Second Phase: 1964-1966. Bangkok, 1964. p. 175.

	Percentage
Agriculture and Cooperatives	14.15
Industry and Mining	7.94
Power	13.26
Communication and Transportation	31.32
Community facilities and Social Welfare	16.74
Public Health	4.18
Education	7.63
Unallocated	4.78
	100.00

The results of investment in the agricultural sector will be of special importance to the country since the government can secure increased revenue from agricultural production to finance economic development and for the repayment of borrowed capital. Discussion on this will be in the next chapter.

Financial Resources

The major source of funds will be appropriations from the national budget. For the six years of the Plan, 17,075 million baht or 52.3 percent of the requirements will come from this source. This detail will be discussed at the end of this chapter. Second, foreign loans are to provide 7,186 million baht or 22.0 percent.

Third, foreign grants are to provide 3,452 million baht or 10.6 percent. Fourth, 4,944 million baht or 15.0 percent are to come from public enterprises and local governments. Table 8 shows the detail for each year.

The National Appropriation

The level of national appropriations is an instrument in the management of the nation's economy. It depends on the government's policy. According to Burkhead, the revenue of the public sector will have specific effects on the level of income and economic activity in the private sector. Also, the expenditures of the public sector will influence the kind of economic activity conducted in the private sector, and will partially determine the level of total economic activity (6, p. 59).

The Bureau of the Budget is responsible for preparing, analyzing, and executing the state budget. It became a part of the staff of the Prime Minister by the Reorganization Act - 1959. This is because by that time, the budget system was in the process of modernization, and the central budget function was under the Comptroller General Department. Again, the primary purpose of a national budget agency is to assist the responsible political officers in making choices. It must have an active part in helping to make decisions on financial matters. It must serve the executive who is

Table 8. Six-year development plan expenditures by source and by fiscal year, 1961-1966.

Source	First Half		Total		Second Half		Total 1964-1966	Grand Total
	1961	1962	1963	1961-1963	1964	1965		
-----Millions of Baht-----								
National Budget								
Appropriations	<u>1,601.57</u>	<u>1,991.81</u>	<u>2,582.34</u>	<u>6,175.72</u> ¹	<u>2,940.13</u>	<u>3,878.88</u>	<u>4,080.43</u>	<u>17,075.16</u>
Central government	1,056.62	1,529.65	1,814.43	4,409.70	2,327.76	3,090.45	3,623.58	13,442.49
Public enterprises	483.95	367.16	632.91	1,484.02	496.37	620.43	262.85	2,863.67
Local governments	61.00	95.00	135.00	291.00	116.00	168.00	194.00	769.00
Foreign loans	<u>472.97</u>	<u>763.74</u>	<u>962.19</u>	<u>2,189.90</u>	<u>1,681.74</u>	<u>1,715.62</u>	<u>1,590.18</u>	<u>7,186.44</u>
Central government	107.00	145.00	345.39	597.39	663.05	1,071.04	1,355.44	3,686.92
Public enterprises	365.97	618.74	516.80	1,601.51	1,018.69	644.58	234.74	3,499.52
Foreign grants (central government)	<u>446.19</u>	<u>615.54</u>	<u>799.65</u>	<u>1,861.48</u>	<u>629.80</u>	<u>547.70</u>	<u>413.00</u>	<u>3,451.98</u>
Own resources	<u>552.79</u>	<u>701.62</u>	<u>867.71</u>	<u>2,122.12</u>	<u>1,060.53</u>	<u>859.08</u>	<u>902.60</u>	<u>4,944.32</u>
Public enterprises	422.79	470.62	600.71	1,494.12	686.53	414.07	380.60	2,975.32
Local governments	130.00	231.00	267.00	628.00	374.00	445.00	522.00	1,969.00
Total	3,073.52	4,072.81	5,211.89	12,358.22	6,312.20	7,001.27	6,986.21	32,657.90

¹ Of this total, 681 million baht represents appropriations to public enterprises for repayment of foreign debt and payment of customs and business taxes; the net total is 5,495 million baht.

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966, Second Phase: 1964-1966. Bangkok, 1964. p. 175.

responsible for the final decisions concerning the budget, and must accomplish this service efficiently. It must have stature, prestige and appropriate recognition within the governmental organization (48, p. 93). In order to become more effective, the government gave the responsibility to the National Economic Development Board for considering and settling the priority of long-term economic development plans proposed by various government offices. So both of these offices have to collaborate which will lead to the proper decisions of the Thai government on both major parts of the budget-- receipts and appropriations.

Receipts

Estimates of receipts will necessarily be conditioned by the biases of the estimators. The pressure for increased taxes or for reduced taxes may be influenced by the estimates of revenue from existing taxes. In general, the nature of the task of revenue estimating for the budgetary purpose will be determined by the character of revenue sources, their stability, and time relationship (6, p. 382). In Thailand, government receipts consist of revenue, borrowings and foreign aid.

The main portion of revenue, approximately 90 percent, will be derived from taxes and duties. These taxes and duties are personal income tax, corporation income tax, customs duties, business

tax, excise tax, rice premiums, and etc. The two biggest items are business taxes and import taxes.

Of the taxes and duties, approximately 90 percent come from indirect taxes. This is due to the low income of a large portion of the population which could not share much in taxes. It is especially difficult to enforce an income tax in Thailand. Other taxes, such as land taxes, are still not levied at all in Thailand, and also the government does not impose any charge for the improvement of land irrigated through state works. The Mission recommended collection of taxes on irrigated land in an annual charge of 20, 15, and 5 baht per rai for the first, second, and third categories, respectively. The Royal Irrigation Department will classify land into categories according to benefits derived from irrigation (12, p. 52).

In spite of a large amount of revenues from taxes and duties, Thailand's tax burden is lower than that of many countries at the same stage of development. Recently, the Thai government has improved in tax collection which has brought in higher revenues. It should be stressed that in the underdeveloped countries, the need is greatest for an improvement in administration and collection of taxes. Therefore, it is more important first to tackle this task than to introduce new taxes, or to try to reform the entire system of taxation. In Thailand, the present Prime Minister also stated in the

budget policy for the fiscal year 1965:

"National revenues will be augmented through effecting a tighter and sounder tax collection system so that leakages will be prevented, and equity of the tax burden ensured;"

Besides taxation, the revenue comes from sale of goods and services, profit from non-monopolistic state enterprises, and others. This includes, approximately, 10 percent of the total estimated revenue of the Thai government. Details on sources of revenues are given in Appendix Tables 3 and 4.

Domestic borrowing has been used to obtain funds from the Bank of Thailand, the Government Savings Bank, the Commercial banking system and from the public. Approximately, 15 percent of the total estimated receipts come from such borrowing. Borrowing is the method used for meeting deficits in the budget. Budget deficits have been increased because the Thai economy is in the developing stage and needs a lot of money to develop the country.

The total result of borrowing depends upon the source of funds borrowed. If the government borrows from a non-bank source, the effect can be classified as follows:

a) If it is money the consumer would have used to pay for consumer goods, the government will reduce private consumption.

b) If it is money the consumer would have saved, the borrowing will have the effect of reducing private investment.

c) If it is money kept in the form of cash balances, it will reduce cash balances.

In this case, it can be concluded that government borrowing tends to reduce the money of the public which, in turn, tends to raise the rate of interest. Investment will be reduced while the rate of interest continues to be high or has a downward influence on private spending in the economy.

If the government borrows from commercial banks or the Central Bank, the effect on the economy will become greater through an increase in money supply by the banking systems and the multiplier principle (23, p. 115).

The Thai government realized this, so it has tried to borrow money from non-inflationary sources in order to prevent a deterioration in the value of the baht. However, the government could not avoid borrowing while the nation was spending a lot of money for development; the nation had so many urgent and necessary requirements.

The amount of national debt on May 31, 1964, was 7,796.96 million baht of which:

- a) Long-term loans (bonds), 7,048.8 million baht.
- b) Short-term loans (treasury bills), 548.2 million baht.
- c) Foreign currency loans, 200.0 million baht (33, p. 55).

With the long-term borrowing, the Bank of Thailand issued

Government bonds in different interest notes and payment periods; for example, the amount of 1,000 million baht bearing an interest rate of eight percent per annum and repayable within 15 years; or in the amount of 660 million baht bearing an interest rate of three percent and repayable with 20 years, etc. With the treasury bills, the discount rate per annum averaged 4.98 (28, p. 38).

Foreign aid has been the only remaining source to fill the gap between capital investment requirements and potential domestic revenues. Lewis points out that most of developing countries need to have a foreign financial source to develop their countries, for instance, England has borrowed from Holland in the last couple of centuries, and also the United States borrowed in the nineteenth century. At the present time, the United States, as the richest nation of the world, has a lot of money to lend to the rest of the world (18, p. 244). In the period of President Kennedy's administration, the American aid program had been changed from "what was primarily a decade of defense, to a decade of development in economic and social progress through self-help, long-range development, and a shift from granting assistance to loans" (7, p. 4)

In recent years, the underdeveloped countries have needed part of their financing from foreign countries to accelerate their economic growth, or in other words, these countries are heavily dependent on imports of machinery, and other goods essential to a

rapid economic advance, and also, required loans to supplement domestic resources for economic development. Thailand also faced this problem. In the National Economic Development Plan, approximately one-third of all financing came from foreign financing. This is because the government recognized the need to finance for economic development in the current period in order to expand modernization and well-being through the country to counteract subversion of farmers' minds, while the communists tried to absorb each region of Thailand.

The foreign financing in Thailand came from many sources, some are in the form of foreign loans and some are in grants.

The foreign loans came from the following sources:

a) The International Bank for Reconstruction and Development (IBRD). These sources emphasized the agricultural sector, for instance, irrigation and flood control projects, industry and mining, communication and transportation, and education.

b) The United States--through ICA, AID, the Export-Import Bank, the Development Loan Fund, PL. 480 Yen funds will provide funds for agriculture and cooperatives, industry and mining, power, and communication and transportation.

c) Other countries provide loan funds, including Japan, West Germany, Austria, and France.

The total anticipated borrowing under the Plan is 7,186 million

baht. See Table 8.

The foreign grants can be classified into:

- a) U. S. Dollar Grant Aid is equal to the amount of 1,225.79 million baht.
- b) U. N. Specialized Agencies - 65.32 million baht.
- c) U. N. Special Fund - 188.81 million baht.
- d) Colombo Plan - 112.80 million baht.
- e) U. S. Counterpart Fund - 714 million baht.
- f) "Third Countries"^{5/} and others - 105 million baht.

The total amount is 3,451.98 million baht. Generally, every source was used for financing some part of each development sector (38, p. 178).

Appropriations

The total governmental appropriations for 1965 are allocated for four major purposes. The first is for civil benefits which include economic development, education, and other public services. The second, is the defence sector to provide protection from external aggression. The third, is general administration, and the fourth, is debt services which include funds earmarked for

^{5/} "Third Countries" - bilateral grant aid from countries other than the United States and Colombo Plan countries.

retirement of debts contracted by the government for economic development investments.

By function, these appropriations can be classified as follows:

	Percent of Total
Economic services	27.2
Education services	17.1
Defence	15.5
Health and public services	15.0
Internal peace maintenance	7.5
General administration	7.5
Contribution, Subsidy and others	4.7
Debt services	5.5

The economic services appropriation contains the heart of the Thai economy. They include the appropriations for communication, transportation, agriculture, fuel and power, and manufacturing and mining. The economic services received a higher investment appropriation than other classes. Of the 3,369.5 million baht appropriated for this group in 1965, 1,412 million baht was for regular expenditure and 1,956.6 million baht was for investment (34, p. 16-20).

The percentage of the total expenditure in 1961-1965 ranged from 20-27 percent for economic services, while education service was from 16-17 percent, and defence from 15-17 percent and so on.

It should be pointed out that in the last five years, the Thai government has changed the major emphasis of policy from defence to economic development. Thus, the percentage of the budget allocated to economic services has increased, but the percentage for defence has declined slightly. However, it might be said that more than 50 percent of the total governmental expenditure is contributed to salaries and remuneration.

Fiscal policy has had to smooth out the economic fluctuations in the economy. Government spending compensates for other fluctuation in the economy, for instance, the government keeps trying to stabilize the balance between the public sector and the private sector. When the private sector slows down in spending, the government has to encourage it by increasing government spending. By the same token, the government should decrease spending when the private sector increases spending especially if there is danger of price inflation.

In Thailand's situation during the past decade, the private sector was not interested enough in economic development to bring about the growth rate desired by the government. Thus, the government created the National Economic Development Plan in order to increase private sector spending as well as public investment. During this period, the government has used deficit financing. The average percentage rate of growth in gross domestic products in

the period 1957-1962 was 7.1, but the percentage rate of growth of gross fixed capital formation was 10.4 (39, p. 140).

From the budget speech of the Prime Minister in 1965, it can be concluded that the government's expenditure policy will be as follows:

- 1) Public money will be spend in such a way as to confer maximum benefits to the Thai people and the country;
- 2) There will be an improvement and expansion of national activities which have a strong impact on national economy, for example, irrigation, power and highways;
- 3) Public services will be improved. National education standards will be raised.
- 4) Public welfare spheres will be widened and the administration system will be improved so as to make it more efficient, and able to play its role under the National Economic Development Plan (33, p. 3).

DEVELOPMENT OF THE AGRICULTURAL SECTOR
AND FINANCING OF THE PLAN

Government efforts in agricultural development, including improvement in technology and methods, together with the expansion of social overhead facilities--for transportation, communications, educational facilities, and health-- will raise the level of agricultural production.

The agricultural sector will increase in earning power and contribution to the national economy, such as an increase in export and food supplies, increase in national income, capital formation, and also an increase in the rate of growth of economic activities.

Growth of Agricultural Exports and Food Supplies

As agricultural output expands, increased agricultural products will be available to feed the rapidly growing population. At the present time, Thailand is a food surplus country. The Economic Survey of Asia and the Far East of 1961, reported that, "..... perhaps one-quarter of the rice harvest enters domestic markets and another fifth the export markets, although Thailand is a major exporter of rice. For the region as a whole only four percent of the 1960 crop went to exports; but other agricultural crops are produced mainly for the market--sugar, tea, rubber, copra, cotton, jute, and hemp. Although these cash crops account for less than

one-quarter of the region's agricultural production, they account for nine-tenths of its agricultural exports and for one-fifth of its total exports." (45, p. 125). The target of the National Economic Development Plan is to ensure that major crops and some other agricultural products will increase in output and export. See Table 9.

Production of a number of upland crops--for instance, cotton, maize, sesame, mung beans, ground nuts, and soy beans--has a higher expected rate of increase than those of rice and rubber. It should be noted that forest products do not increase except for other varieties of timbers. Owing to past exploitation, exports of teak have been declining.

To obtain an estimate of the increase in value of agricultural products resulting from the Plan, the increment in volume of the commodities shown in Table 9 is valued at the average export price for each commodity during the period 1957-1961. On this basis, it is estimated that the agricultural production in 1966, will be higher than that in 1961, by 5.0 billion baht. After 1966, output will be higher by this amount every year, because of the investments made under the Plan.

The value of some major agricultural commodities exported will increase after agricultural production has increased under the Plan. The details can be seen in Table 10.

According to these estimates, Thailand will get an increase of

Table 9. Planned increases in output and total exports of some agricultural products, 1961-1966.

Item	Production		Volume of Export
	1961 Actual	1966 Target	
<u>Crops (tons)</u>			
Rice	8,247,000	9,500,000	1,500,000
Rubber	186,100	210,000	200,000
Maize	598,000	750,000	710,000
Tapioca	2,012,500	2,200,000	660,000 ^{1/}
Soy beans	24,200	35,000	5,000
Mung beans	41,000	66,300	30,000
Ground nuts	107,900	167,000	15,000
Cotton seed	38,300	70,000	7,000
Castor beans	32,800	45,650	40,000
Sesame seed	12,400	22,500	4,500
<u>Livestock (head)</u>			
Swine	3,800,000	4,180,000	100,000
Chickens	44,000,000	50,000,000	1,000,000

^{1/} Includes tapioca flour and cassava waste.

Source: National Economic Development Board. The National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 54-56.

Table 10. The comparison of value of agricultural exports before and after the Plan.

Items	Average Value 1957-1961	Estimated Value in 1966 ^{1/}	Surplus or Deficit
	Thousands of Baht		
Rice	3,066,756	3,498,000	+ 431,244
Rubber	1,956,416	2,446,000	+ 489,584
Corn	330,912	759,700	+ 428,788
Tapioca	245,561	709,500	+ 463,939
Soy beans	6,466	10,490	+ 4,024
Mung beans	40,586	73,740	+ 33,154
Ground nuts	50,191	58,410	+ 8,219
Cotton seed	6,821	7,567	+ 746
Castor beans	74,390	114,680	+ 40,290
Sesame	14,967	21,307	+ 6,340
Coconuts	4,476	6,048	+ 1,572
Other timber	13,217	17,080	+ 3,863
Swine	19,720	56,300	+ 36,580
Total	5,830,479	7,778,822	+1,948,343

^{1/} The price used for estimated value in 1966 was derived from the average period of 1957-1961. This is because the price of agricultural products always fluctuated every year.

Source: Data analyzed from Table 9 and from Agricultural Statistics of Thailand, 1963. p. 114-128.

approximately 2,000 million baht per year from the Plan (by the end of the Plan in 1966). This will improve the increase in foreign exchange available for imports of capital goods and machinery.

These estimates are based on conservative assumptions about yield and international markets. For example, the estimate for rice production is for 9.5 million tons in 1966. This is no higher than the actual production in 1963. If, on the other hand, the production were to increase during the three years at the rate of 2.4 percent per year as in 1959-1963, by 1966, it would be 10.1 million tons.

The agricultural production targets in the first half of the Plan were exceeded. Table 11 shows the actual production and the targets for some major agricultural products. Rice was expected to increase from 6,770 metric tons in 1959 to 8,100 metric tons in 1963. Production actually exceeded this level in the first year of the Plan.

Table 11. Agricultural production and targets, 1959-1963.^{1/}

Item	Production in Metric Tons					Plan Target 1963
	1959	1960	1961	1962	1963	
Rice	6,770	7,834	8,247	9,254	9,500	8,100
Maize	317	544	598	665	675	634
Cassava	1,083	1,222	1,726	2,077	2,200	1,250
Rubber	174	171	186	195	198	185

^{1/} Preliminary.

Source: National Economic Development Board. National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 20.

Contribution from Irrigation

The increases in agriculture production resulting from the Plan will result from expansion of the cultivated areas and from increase in farm productivity. Irrigation development which will be one of the major causes of increased productivity will permit better management of all land, capital, and labor resources. It will permit better flood control during the wet season, and the planting of second crops in the rice fields during the summer. Having adequate water for crop production will also cause higher returns from improved methods, such as fertilizing and weed control, so that all factors will yield higher returns under irrigation.

The published statement of the Plan contains many references to the value of increased irrigation, for example:

".....a considerable increase may be expected to come from the efforts of the government to extend irrigation and flood control. These will be the prime contributing factors in the increases of paddy production, and crops grown in rotation with rice. The development plan for agriculture has, therefore, made large provisions for the Department of Irrigation. Budget appropriations during 1964-1966 are expected to amount to almost 1.2 billion baht. Vast sums are needed for irrigation projects, but the successful completion of the important and high-priority projects will yield handsome returns far

above the initial sums expended." (38, p. 62).

During the first three years of the Plan, the area under effective irrigation increased by about 400,000 rai. In the last three years of the Plan, 1964-1966, the area under effective irrigation is expected to increase about 900,000 rai. It should be pointed out even though these areas will be cultivated with irrigation, the farmers' skill in management and using new techniques should cause productivity on these areas to continue to increase for many years after 1966.

Total growth benefits from irrigation under the Plan will not come by 1966 for another reason. This is that many of the irrigation projects commenced under the Plan will not be completed until 1957 to 1970. In addition to the 900,000 rai expected to receive water by 1966, another 4,311,000 rai will eventually be irrigated from projects started in 1964-1966 (38, p. 62-63).

The delay in realizing the benefits from irrigation or other developments is not necessarily a disadvantage. The increased expenditures for investment in economic development will also continue beyond the end of the Plan period. The increases from agriculture coming in later years will be available to help pay for the larger expenditures required by these recurring items.

Capital Expenditures and Recurring Expenditures

In all classes of economic development, expenditures can be divided into recurring expenditures which are those that can be expected to continue every year after they are started, and capital expenditures which will be made only one time and during a given year of the Plan. The division between these two for the first phase of the Plan is shown in Table 12. In 1959, when the Plan was being prepared, recurring development expenditures were 1,675 million baht. By 1963, these had increased to 2,225 million baht. Most of the increments to the recurring expenditures are for education, public health, maintenance, research, extension, etc. Capital expenditures during these years ranged from 2,420 to 2,825 million baht.

Economic development also resulted in the need for increased government spending in administration, police, and other ordinary expenditures. The relationship between development expenditures and other government expenditures as estimated by the planners before the start of the first phase are shown in Table 13. Both of these were expected to increase approximately twice their 1959 level by 1963.

It has been necessary to increase non-capital expenditures in much higher proportion. Some of this increase represents recurring development expenditures. However, the great increase in education,

Table 12. Proposed expenditures on public development, 1959-1963.

	1959	1960	1961	1962	1963
Millions of Baht					
Recurring Expenditures					
Agriculture	110	125	150	160	195
Irrigation	80	95	120	135	150
Cooperatives	10	10	10	15	15
Industry & mining	10	15	20	25	25
Highway	150	170	200	210	220
Other transport and communications	80	90	100	110	110
Education	900	930	980	1,040	1,100
Health & welfare	200	210	230	250	250
Public works	70	75	80	90	100
Other	65	65	65	60	60
Sub-total	1,675	1,785	1,955	2,095	2,225
Capital Expenditures					
Agriculture	35	65	50	45	45
Irrigation	225	230	190	210	265
Industry	100	30	40	50	60
Power	560	660	740	620	280
Highway	475	485	440	450	440
Other transport and communications	515	560	575	585	515
Local development	250	270	305	330	335
Education	100	140	205	215	185
Health & welfare	50	65	70	30	30
Housing	--	30	40	60	80
Administration buildings and miscellaneous	135	140	170	175	185
Sub-total	2,445	2,675	2,825	2,770	2,420
Grand Total	4,120	4,460	4,780	4,865	4,645

Source: International Bank for Reconstruction and Development. A public development program for Thailand. Baltimore, John Hopkins, 1959. p. 25.

Table 13. Recent and proposed total public sector expenditures. ^{1/}

	Actual		Estimated ^{2/}			Proposed ^{3/}				
	1952	1956	1957	1958	1959	1960	1961	1962	1963	1965
Billions of Baht										
Recurrent development expenditures	1.0	1.5	1.6	1.6	1.7	1.8	2.0	2.1	2.2	
Capital expenditures	1.2	1.7	2.1	2.0	2.4	2.7	2.8	2.8	2.4	
Sub-total development	2.2	3.2	3.7	3.6	4.1	4.5	4.8	4.9	4.6	3.7
Administration, police defence, and miscellaneous	2.4	3.5	3.5	3.6	4.0	4.2	4.3	4.4	4.6	8.6
Total government expenditures	4.6	6.7	7.2	7.2	8.1	8.7	9.1	9.3	9.2	12.3

^{1/} Include expenditures of the central, provincial and local governments, capital outlays of the major publicly owned utilities from their own resources, and non-budgetary expenditures on economic projects financed from foreign loans and grants including counterpart funds.

^{2/} Rough approximations based on partial information.

^{3/} Computed from the 1965 budget.

Source: International Bank for Reconstruction and Development. A public development program for Thailand. Baltimore, John Hopkins, 1959. p. 26.

police, and other administration costs should be expected as the total economic activity in the country increases and the country becomes more developed.

Agricultural Production and International Trade

The 25 billion baht value of agricultural production in 1963 contributed approximately 35 percent of Gross National Product.

In international trade, agricultural commodities were even more important. Total domestic exports were valued at 9,420 million baht. Of this, 7,904 million baht or 84 percent were agricultural commodities. On the import side of the balance of trade, 2,508 of the 12,802 million baht of goods imported was for agricultural commodities. Imports of food crops were minor. Imports of textile, livestock and livestock products, rubber products, and tobacco were valued at 979, 539, 341, and 124 million baht, respectively (26, p. 2-4). All of these should be reduced by increased production and manufacturing under the Economic Development Plan. The imports that required the greatest amount of foreign exchange--manufactured goods, machinery and transport equipment, chemicals and fuels--may be reduced by some developments in Thailand, but increased demands for import of these items will result from investment in transport, power, manufacturing, etc.

The balance of payments for the years of the Plan tells more

about the economy. See Table 14. In the years 1961-1963, annual earning of foreign exchange by export of goods and services increased from 10.9 to 11.7 billion baht. It is estimated that this will increase to 13.2 billion baht by 1966. Payments on capital goods and services and imports of non-capital goods and services are also increasing. To offset the increased imports and payments, receipt of foreign grants, loans, and private investment of 10.23 billion baht will be necessary in the years 1964-1966.

Contributions to Capital Formation

Nurkse gives the definition of capital formation that "the society does not apply the whole of its current productive activity to the needs and desires of immediate consumption, but directs a part of it to the making of capital goods: tools and instruments, machine and transport facilities, plant and equipment--all the various forms of real capital that can so greatly increase the efficacy of productive effort." (20, p. 2)

In underdeveloped countries the stock of capital is low and economic activity is carried on without the assistance of large quantities of capital assets. Low capital in general application leads to a low level of output.

In Thailand, the growing need to estimate capital formation as a measure of economic policy has long been realized, but despite this

Table 14. Balance of payments of Thailand fiscal years^{1/} 1961-1966.

Item	1961	1962	1963	1964	1965	1966
	Billions of Baht					
1. Foreign exchange earnings on goods and services	10.97	11.66	11.65	11.93	12.49	13.18
2. Receipts of foreign grants, loans, and private investments	1.92	2.60	3.09	3.57	3.54	3.21
Total receipts	12.89	14.26	14.74	15.50	15.93	16.39
1. Payments on imports of non-capital goods and services	7.67	7.93	8.44	9.16	9.85	10.66
2. Payments on imports of capital goods and services	3.70	4.61	4.97	5.99	6.20	6.03
Total payments	11.37	12.54	13.41	15.15	16.05	16.69
Change in foreign exchange reserves	1.52	1.72	1.33	0.35	-0.12	-0.30

^{1/} October to September.

Source: National Economic Development Board. National Economic Development Plan, 1961-1966; Second Phase: 1964-1966. Bangkok, 1964. p. 37-39.

fact, the first attempt to estimate capital formation was not made until recently. In 1957-1958, the International Bank Economic Survey Mission to Thailand, with the cooperation of the Ministry of Finance and the National Economic Council, prepared the first capital formation estimates for the year 1952 to 1956. Estimates for the years, since then, have been the responsibility of the National Economic Development Board.

The annual increment of capital formation in Thailand can be measured from the changes in the value of four major components; namely, (1) imports of capital goods, (2) building and construction, (3) other domestic capital goods, and (4) change in inventories.

From Table 15, it is seen that the gross fixed capital formation has increased every year. The increasing proportion of building and construction that contributed to the public sector's capital formation during 1957-1961 is caused by the government's responsibility for the entire range of infra-structure projects, which, in view of the high cost involved and standard of operational skill required, are too ambitious for private initiative.

In the overall estimates, the total for the five years of gross fixed capital formation before the Development Plan started was 8,213.3 million baht while the estimate for 1966 alone is 16,620 million baht.

This production is based on the assumption that economic

Table 15. Gross fixed capital formation by type of capital at current prices.

Type of Capital Goods	1957	1958	1959	1960	1961	Average ^{1/} 1957-61	Estimate 1966 use price 1963
Millions of Baht							
1. Net import of capital goods	2,274.7	2,310.2	2,599.2	2,958.1	3,136.4	2,655.7	5,470
2. Building and construction	3,186.8	3,163.8	3,853.6	4,277.8	4,404.8	3,777.4	6,810
a) Private	2,311.6	2,181.8	2,315.7	2,689.4	2,651.6	2,430.0	4,030
b) Public	875.2	982.0	1,537.9	1,588.4	1,753.2	1,347.4	2,780
3. Other domestic capital formation	1,421.1	1,559.5	1,779.8	1,975.9	2,165.0	1,780.2	4,340
Gross domestic fixed capital formation	6,882.6	7,033.5	8,232.6	9,211.8	9,706.2	8,213.3	16,620

^{1/} Calculated from column 2 - column 6.

Source: National Economic Development Board. National Income Statistics of Thailand, 1964. Bangkok, 1964. p. 82 and p. 129.

development will bring about large increases in capital formation. Experience during the first phase of the Plan in 1961-1963 supports this assumption. Gross fixed capital formation increased from 9,706 million baht in 1961 to 13,925 million baht in 1963. The division between private investment and public investment is shown by the data in Table 16. While the public sector increased from 3,219 to 3,907 million baht, or 21 percent, the private sector increased from 6,487 to 10,018 million baht, an increase of 54 percent.

Both sectors made substantial contributions to capital formation in all parts of the economy, but each had different priorities. The public sector invested most in communications, agriculture, services, and electricity. The private sector invested most in manufacturing, commerce, agriculture, and construction.

Transfer of Manpower from Agriculture to Other Occupations

One of the best attested facts in development is that economic growth is associated with a gradual decline in the percentage of the labor force engaged in agriculture. In subsistence economies, nearly the entire labor force is needed to produce even a minimum food supply. Only a small part can be spared to produce other goods. With gradually improving methods of cultivation, an expansion of agricultural production becomes possible with a declining labor force. This permits the transfer of manpower from agriculture to

Table 16. Gross fixed capital formation in the public and private sectors by industrial use, at current prices.

	1961	1962	1963 ^{1/}
	Millions of Baht		
A. <u>Public Sector</u>	3,219.1	3,350.9	3,907.1
1. Agriculture	587.7	589.4	678.5
2. Communication	1,038.2	941.4	1,100.1
3. Manufacturing	159.6	284.8	339.0
4. Mining	60.5	56.0	65.6
5. Electricity	381.3	484.9	570.0
6. Commerce	146.7	326.7	384.5
7. Other construction	130.0	169.2	194.1
8. Service	715.1	498.5	575.3
B. <u>Private Sector</u>	6,487.1	8,566.7	10,017.9
1. Agriculture	1,128.7	1,217.7	1,441.2
2. Communication	908.5	880.4	874.1
3. Manufacturing	2,255.8	2,355.1	2,819.5
4. Mining	607.0	410.6	576.0
5. Electricity	253.0	457.2	572.0
6. Commerce	606.6	2,031.1	2,267.7
7. Other construction	685.7	877.5	1,036.8
8. Service	41.8	337.1	430.6
Total A and B	9,706.2	11,917.6	13,925.0

^{1/} Preliminary.

Source: National Economic Development Board. National Income Statistics of Thailand, 1964. Bangkok, 1964. p. 131.

non-agriculture, in order to produce the other goods and services needed in a modern economy. It is the close interrelationship between the two sectors of the economy that is important, for if productivity in agriculture is to rise, it is equally essential for the non-agricultural sector to expand rapidly, which generally means that other occupations must attract labor away from agriculture.

In Thailand, we have learned that the farmers were engaged in their farm operations an average of only 100 days per adult laborer per year. The rest of the 265 days, they are free from work. For a high percentage of the rural people, the rest of their spare time has been wasted with very little benefit to production.

As industries are established and the agriculture has been improved by new methods and technology, the farmers use their spare time to: (1) improve their farm management and to increase productivity, (2) engage in industrial work. This is true in the underdeveloped countries; but unlike the developed countries where they generally have a significant proportion of their occupied population in manufacturing industry, in underdeveloped countries, the proportion so employed is comparatively small.

Increase in Net Rural Income as a Stimulus to Industrialization

There is an agreement that the developing countries must diversify their primary agricultural economies through

industrialization. Obviously, any new industries established should be adapted to the availability of production factors in the country. This effect may be direct, arising from the linkage of the selected industry with other industrial sectors which supply it with inputs, or use its output. Or it may be indirect, stemming from the social benefits which the new industry confers, including any stimulating effects on the agricultural sector. This is why a comprehensive social evaluation of industrial development projects frequently revises the priority ratings derived from a simple financial evaluation. The type of industry based on the products of the farm, the forest, and the sea should have a high claim to priority in the industrialization plans of developing countries such as Thailand.

Furthermore, certain agricultural processing industries must necessarily be set up near the source of a perishable or a bulky product. The locational factor can benefit both agriculture and industry. Industrial wage rates in such plants would tend to be lower, since unemployed or seasonally idle labor can be employed, while agriculture is benefited by the provision of additional employment opportunities for members of farm households.

Processing of kenaf, tobacco curing, and gunny bag manufacturing are good examples of this in Thailand.

A prosperous agriculture with rising per capita incomes for farmers is more probable if the labor which is surplus to agriculture's

needs is being drawn away and finds productive employment at higher rates of remuneration in other sectors. This redundant labor will, otherwise, constitute a drag on the economy, and unproductive work and income-sharing will be widespread.

In the rural areas of Thailand, the National Economic Development Plan provides two alternatives for increasing incomes. Some will increase their incomes by finding employment in industry or services outside of agriculture, or in processing industries closely related to agriculture. Others, will increase their income by remaining in agricultural production and making use of the opportunities for higher productivity provided by irrigation and other rural developments.

In either case, the higher incomes earned as these people increase their productivity will increase aggregate demand, and broaden the market for consumer goods manufactured in Thailand's growing industries.

SUMMARY AND CONCLUSIONS

On the first of January, 1961, his Majesty, the King of Thailand, graciously proclaimed the adoption of the National Economic Development Plan for 1961-1966. This Plan was divided into two phases--1961-1963 and 1964-1966. At the conclusion of the first phase, progress was reviewed and the Plan was revised to take advantage of what had occurred up to that time.

The purpose of this thesis is to examine the relationship between the development of the economy of Thailand and the development of the agricultural segment of that economy under the Plan. The principal objective is to determine what contribution the agricultural segment can make to the financing of the Plan.

Thailand--located in the monsoon tropics of Asia--produces rice, rubber, cassava, and other tropical crops, as well as corn, cotton, soy beans, and other temperate zone crops. The population of 26,000,000 counted in the census of 1960, was dispersed widely over an area of 200,000 square miles--roughly equal to that of Oregon, Washington and Idaho. Seventy-five percent of the people live in rural areas and the population is increasing at the rate of three percent per year.

Approximately 20 percent of the total area is cultivated, but it has been estimated that an additional 15 percent of the total area

could be brought under cultivation.

Thailand has large unused water resources. Lack of storage permits water from the heavy monsoonal rain to flood the crop lands and, then, drain away to leave the land very dry for six months of the year. To improve production of rice during the wet season and production of rice and other crops during the dry season, approximately ten million rai were being irrigated in 1963. The major irrigation projects under construction or in an advanced stage of planning under the Plan will provide adequate irrigation to another ten million rai.

Agriculture is the most important single segment of the Thai economy, but productivity has been low because of low level of education of the people and primitive cultural methods.

Even with this low productivity, agriculture provides 35 percent of the Gross National Product and 85 percent of the goods exported from Thailand. With its large land resources for the size of its population, Thailand is a food surplus country. Rice and rubber are the principal exports, followed by maize and cassava.

The National Economic Development Plan places emphasis on expansion of agricultural production and export of agricultural commodities. Large investments will be made in the agricultural infrastructure, such as irrigation works, power, transport and communications, agricultural research facilities, and agricultural

extension services. Human resources in agriculture will be improved through education and health programs.

However, other segments will also be included in the Plan. Industrial and mineral production, electrical power, transport, communications, community facilities, social welfare, public health, and education will all be developed by large public and private investments with the objective of increasing the well-being of all the people.

Those state-owned and operated business enterprises which are significantly important to the Economic Development Plan--such as State Railways, Port Authorities, Thai Airways, Telephone, Power, Cold Storage, Forestry, Rubber Plantation, Weaving and Plywood--will be encouraged and expanded. During the period 1964-1966, these state enterprise activities will invest from their own resources and other sources a total of 4.8 billion baht which is a little less than one-fourth of the total planned development expenditure for the period. Only those activities which are not feasible for private development will be encouraged as new state enterprises. The policy of the government is to encourage private investment wherever possible.

The sources of capital for financing the Development Plan during the period 1961-1966 are Thai government revenue from taxes, 52 percent; foreign loans, 22 percent; public enterprises and local government, 15 percent; and foreign grants, 11 percent.

During the period 1961-1966, output of the principal agricultural commodities is expected to increase significantly. Expected percentage rates of increase are 15 for rice, 13 for rubber, 25 for maize, 9 for tapioca, 45 for soy beans and 83 for cotton, to mention only some of the more important crops. For many of these, nearly all of the increase will be exported.

During the first three years of the Plan, increases in agricultural output greatly exceeded planned targets. Targets for 1966 were established at what appears to be conservative levels because of the uncertainties of the weather. For example, the target of 9.5 million tons of rice in 1966 had already been reached by 1963, but in that year, weather was judged unusually favorable.

Agricultural production, and, therefore, exports, resulting from the Plan, will continue to increase for many years after 1966 for two reasons. First, many of the irrigation projects started or planned during 1961-1966 will not be completed until later. The benefits from irrigation resulting from these projects will not be realized for many years. The second reason is that farmers must learn to use irrigation and other new practices to produce one or two crops per year, or sometimes, crops that are new to them. Their productivity will increase when they learn.

The increased earnings from agricultural production and exports which will come in later years will be needed to pay the

higher requirements for foreign exchange, and the tax revenues needed to pay for recurring expenditures required to continue the costs result from investments made during 1961-1966.

For the years 1961 to 1963, recurring expenditures ranged from 1.9 to 2.2 billion baht per year, while capital investment ranged from 2.4 to 2.8 billion baht. For the years 1964-1966, the development expenditures will be higher, ranging from 4.6 to 4.9 per year, but the ordinary expenditures other than these are not expected to increase significantly. If the estimate of five billion baht per year of increased value of agricultural production is realistic, the increase in agriculture alone could return the entire amount of capital needed for investment in development in a few years. Gross fixed capital formation increased from 9.7 to 13.9 billion baht per year in the three years of the first phase of the Plan. Only 700 million of this represented increased investment by the public sector. The private sector increased investment 3.5 billion, or five times the amount of the public sector. When the infrastructure is developed, the need for investment by the public sector should decline, but the investment by the private sector in commerce and industry can be expected to increase. As this happens, the need for the transfer of increased earnings from the private sector to government through taxes or borrowing will decline.

On the basis of targets in the Plan, the value of exports of

agricultural commodities can be expected to increase by two billion baht per year by 1966, because of investment under the Plan.

Foreign exchange earnings on goods and services increased from 11 to 11.7 billion baht per year during the first phase of the Plan. By 1966, this is expected to increase to 13.1 billion, and receipts of 3.5 billion baht from foreign grants, loans, and private investment will be necessary for a balance of payments. The excess of imports over exports of goods and services is expected to decline as exports increase or as the demand for foreign capital goods declines.

As development progresses, the agricultural sector in Thailand will provide manpower for the other sectors. At present, farmers are engaged in their farm operations an average of only 100 days per year. As a result of the Economic Development Plan, these farmers will use more of their labor to operate their land more intensively, or they will take part-time jobs in the industries that are established. Some will change to the industries full time, but the possibility of intensification of crop production through irrigation means that all of those underemployed farm laborers are not surplus.

As their income is increased by improvements in resource use, the rural people in Thailand will increase their demand for consumer goods and investment goods manufactured in Thailand. This will increase the demand for the products of new factories.

The demand for imported goods may also increase. The way in which the increased purchasing power is divided between imported and domestic goods will depend on the government. Import duties are an important source of revenue.

From this study, it can be concluded that the agricultural sector, if properly developed, can be the major contribution in financing the economic development of Thailand. The increased return from agricultural production and exports of agricultural commodities could provide the revenue to finance the needed expenditures. However, it is up to the Plan's administrators to train and organize the personnel who can communicate their program to achieve the coordination between the various departments involved in the Economic Development Plan.

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APPENDIX

Appendix A. Measures used.

Amphur - A political subdivision similar to a county.

Baht - A unit of money. Approximately 20.80 baht equivalent to \$1.00 U.S.

FY - Fiscal year. It runs from October 1 of each year to September 30 of the succeeding year.

Paddy - The plant or the unhulled grain from which rice is milled. In this thesis, the term rice is used to mean either paddy or rice.

Rai - A unit of land measurement. One rai is equivalent to approximately 0.4 acre or 0.16 hectare. One hectare is equal to 6.25 rai. One acre is 2.5 rai.

"Third Countries" - Bilateral grant aid from countries other than the United States and Colombo Plan countries.

Ton in this thesis means metric ton, 2,204.6 pounds, equivalent to 1 metric ton.

Appendix Table 1. Percentage distribution of Gross Domestic Product by industry of origin, 1954-1963.

Industrial Origin	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963
G. D. P. at Market Prices	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Agricultural, total	40.0	42.0	40.4	39.2	38.6	36.7	37.4	36.7	35.6	35.1
Agricultural crops	28.5	30.4	31.1	28.5	29.5	28.3	29.1	28.6	28.9	27.2
Livestock	4.3	5.3	3.7	5.2	4.0	3.7	3.6	3.5	2.5	3.0
Fisheries	2.4	2.1	2.4	2.4	2.2	2.1	2.2	2.2	2.0	2.5
Forestry	4.8	4.2	3.2	3.1	2.9	2.6	2.5	2.4	2.2	2.4
Mining and quarrying	1.7	1.6	1.7	1.7	1.2	1.3	1.4	1.5	1.6	1.6
Manufacturing	11.8	11.8	12.1	11.4	12.0	11.4	10.7	11.1	11.6	11.7
Construction	4.2	4.0	4.2	5.2	5.0	5.5	5.3	5.2	5.7	5.7
Electricity and water supply	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.5
Transportation and communication	5.5	5.1	5.4	5.9	5.8	6.7	7.9	8.0	8.0	8.5
Wholesale and retail trade	19.3	19.6	19.4	19.1	18.7	17.8	17.8	17.5	18.1	17.9
Banking, insurance and real estate	1.1	1.4	1.4	1.6	1.8	2.1	2.3	2.6	2.7	2.7
Ownership of dwellings	3.6	3.0	3.2	3.2	4.1	6.3	5.8	5.7	5.3	5.1
Public administration and defence	5.0	4.8	5.5	5.8	5.8	5.2	4.9	5.1	4.8	4.9
Services	7.6	6.5	6.5	6.7	6.7	6.7	6.2	6.2	6.1	6.3

Source: National Economic Development Board. National Income Statistics of Thailand, 1964. Bangkok, 1964. p. 91.

Appendix Table 2. Summary of rice production in the irrigable area, 1958-1963.

	1958	1959	1960	1961	1962	1963
Area total (1,000 rai)	13,437	13,437	13,610	14,132	15,499	15,615
Irrigable area (1,000 rai)	9,978	9,978	10,134	10,517	11,711	11,800
Area planted (1,000 rai)	8,518	8,240	8,557	8,920	10,177	10,492
Area harvested (1,000 rai)	8,042	7,569	8,517	8,773	9,840	10,389
Total production (1,000 metric tons)	3,038	2,847	3,416	3,619	4,145	4,327
Yield per rai (kilograms)	378	376	401	413	421	416

Source: Royal Irrigation Department. Report of the Rice Production in the Irrigable Area, 1963.
(in Thai) Bangkok, 1964. p. 16.

Appendix Table 3. Revenues of the Government of Thailand, by source, 1960-1965.^{1/}

Receipt Category	1960 ^{2/}	1961	1962	1963	1964 ^{3/}	1965
	(9 months)					
Revenues	Millions of Baht					
1. Taxes and duties	6,176.8	6,556.3	7,419.1	7,811.5	8,260.0	9,235.4
2. Sales of goods and services	217.8	203.4	221.9	347.1	253.9	280.9
3. Profit from non-monopolistic state enterprises	151.4	107.8	213.2	226.2	252.8	370.4
4. Other revenues	122.3	178.3	171.9	249.8	353.3	683.3
Total	6,668.3	7,045.8	8,026.1	8,634.6	9,120.0	10,570.0
Loans	1,137.2	1,397.3	1,394.1	1,691.2	2,310.0	1,850.0
Receipt	7,805.5	8,443.1	9,420.2	10,325.8	11,430.0	12,420.0

^{1/} Does not include foreign grants or loans.

^{2/} FY 1960-1963; actual figures.

^{3/} FY 1964 and 1965; estimated figures.

Source: Bureau of the Budget. Budget in Brief, FY 1965. Bangkok, 1965. p. 11.

Appendix Table 4. Sources of revenue and expenditure in 1965.

	Revenue		Expenditure	
	Source	Total %	Source	Total %
	Millions of Baht			
Revenue taxes	3,010.4	24.24	Economic services	3,374.8 27.17
Custom duties	2,724.6	21.94	Education services	2,168.6 17.46
Excise taxes	1,631.7	13.14	Defence	1,930.3 15.54
Other revenues	871.2	7.01	Health & public service	1,847.5 14.87
State enterprises	851.7	6.86	General administration	1,196.4 9.63
Rice premium	800.0	6.44	Internal peace maintenance	931.6 7.50
The Ministry of Interior	501.5	4.04	Debt services	689.0 5.55
The Ministry of Agriculture	138.8	1.11	Others	281.8 2.28
The Ministry of Industry	40.1	0.32		
Borrowing	1,850.0	14.90		
Total	12,420.0	100.00		12,420.0 100.00

Source: Bureau of the Budget. FY 1965 Budget Document, vol. 1. Bangkok, 1965. p. 7.

Appendix Table 5. Estimates of Gross National Product of Thailand by industrial origin at current prices and wholesale price index, 1956-1963.

Industrial Origin	1956	1957	1958	1959	1960	1961	1962	1963 ^{1/}
	Billions of Baht							
Agriculture	16.6	16.5	16.8	17.8	20.6	21.3	22.4	23.7
Mining and quarrying	0.7	0.7	0.5	0.6	0.7	0.9	1.0	1.1
Manufacturing	5.0	4.8	5.2	5.5	5.9	6.4	7.3	7.9
Construction	1.7	2.2	2.2	2.6	2.9	3.0	3.6	3.9
Electricity and water supply	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3
Transportation and communication	2.2	2.5	2.5	3.2	4.3	4.6	5.0	5.7
Wholesale and retail trade	8.0	8.0	8.2	8.6	9.8	10.2	11.4	12.1
Banking, insurance and real estate	0.6	0.7	0.8	1.0	1.3	1.5	1.7	1.8
Ownership of dwellings ^{2/}	1.3	1.3	1.8	3.1	3.2	3.3	3.4	3.5
Public administration and defense	2.3	2.4	2.5	2.5	2.7	2.9	3.0	3.3
Services	<u>2.6</u>	<u>2.8</u>	<u>2.9</u>	<u>3.2</u>	<u>3.4</u>	<u>3.6</u>	<u>3.9</u>	<u>4.3</u>
G. D. P. at market prices	41.1	42.0	43.5	48.2	55.0	57.9	63.0	67.6
Population (in millions)	23.5	24.2	24.9	25.6	26.4	27.2	28.0	28.8
Per capita G. N. P. at market price (thousand Baht)	1.7	1.7	1.7	1.9	2.1	2.1	2.3	2.3
Wholesale price index	100	100	105	98	97	105	112	104

^{1/} Preliminary. ^{2/} Estimates are imputed rent which are known to be somewhat incomplete.

Source: National Economic Development Board. National Income Statistics of Thailand, 1964. Bangkok, 1964. p. 87 and p. 148.

Appendix Table 6. Projections of capital formation and Gross National Product, 1964-1966.

	Million Baht at 1963 prices		
	1963	1964	1965
Import of capital goods (c. i. f.)	4, 776	5, 010	5, 250
Construction			
Public	2, 266	2, 420	2, 590
Private	<u>3, 382</u>	<u>3, 590</u>	<u>3, 800</u>
Total construction	5, 648	6, 010	6, 390
Other domestic capital formation	<u>3, 501</u>	<u>3, 750</u>	<u>4, 020</u>
Total gross fixed capital formation	13, 925	14, 770	15, 660
Gross domestic product	67, 650	70, 910	75, 590
Gross fixed capital formation as percentage of gross domestic product	20.2 ^{1/}	20.8	20.6
			20.4

^{1/} Gross fixed capital formation at 1956 prices as percentage of GDP, at 1956 prices.

Sources: National Economic Development Board. National Income Statistics of Thailand, 1964. Bangkok, 1964. p. 82.