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The development and maintenance of international markets for Thailand's rice production

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THESIS
THE DEVELOPMENT AND MAINTENANCE OF INTERNATIONAL
MARKETS FOR THAILAND'S RICE PRODUCTION


by

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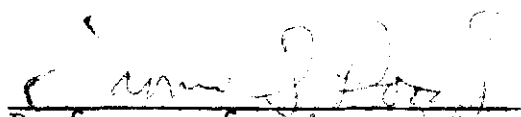
1961

This thesis was prepared under my supervision
and approval is hereby indicated.



Professor of Bus. Admin.
First Reader

This thesis was read by me and is approved.



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CHAPTER I

INTRODUCTION TO THAILAND AND RICE

Geographical Area¹

Thailand is located on the so-called Indo Chinese peninsula in South East Asia. It lies between the parallels of 5° and 21° North Latitude, and between the meridians of 97° and 106° East Longitude. The area is about the same as that of France and is 518,000 square kilometres, or 200,000 square miles. Its greatest length is 1,650 kilometres or 1,023 miles and its greatest breadth is 800 kilometres or 480 miles. The surface of the country is composed of:

1. Flat alluvial plains which are intersected by winding rivers and streams. The alluvial soils become inundated during the rainy season and thus are excellent for the rice cultivation.

2. Mountains which are covered with forests.

3. Also a certain amount of undulating country.

Geographically, Thailand may be divided into four parts: Northern Thailand, the Central Plain, Eastern Thailand, and Southern or Peninsular Thailand. The Southern part or the Peninsular Thailand is bounded on the west partly by the Indian Ocean and partly by Burma, on the east by the China Sea and the Gulf of Thailand, and on the south by the Federated Malay States. Thailand has for its northern

neighbors - Burma and Laos, for its western neighbor - Burma, for its eastern neighbors - Laos and Cambodia.

For convenience, each part of Thailand should be described separately.

1. Northern Thailand. The northern part of Thailand is composed of a mass of mountains. These mountains become not only part of the northern and northeastern frontiers of Thailand but also the source of the four rivers which are finally united into the principal river of the kingdom - the Chao Phraya River. The names of these four rivers are the Mae Ping, the Mae Wang, the Mae Yom, and the Mae Nam* Nan. Among the mountains are level stretches of land along the larger streams. At these points, there are considerable areas of flat alluvial ground suitable for the cultivation of rice. So these areas have become comparatively thickly populated. The average height of the peaks in this area is 1,600 metres above mean sea level.

2. Central Thailand. This part of Thailand is a great alluvial plain. It is over 300 kilometres in length and it varies in breadth from 50 to 150 kilometres. In the City of Bangkok, the roads seldom are more than 1.80 metres above mean sea level. This will give some idea of the flatness of the central plain, and its ability to become inundated. Central Thailand may be divided into three parts:

*In Thailand, a river is generally called Mae Nam, but again this Mae Nam can be cut short to Mae or Nam.

(1) the area south of Latitude 18°, drained by the Mae Nam Chao Phraya, the Mae Nam Suphan, and the Mae Nam Bangpakong.

(2) the area drained by the Mae Klong.

(3) the area south of the Chandhaburi Mountains.

The Mae Nam Chao Phraya is the principal physical feature of the country. Not only is it the principal channel of communication, transporting two of its chief products, teak logs and rice in great river boats, but it is also a source of great wealth in that it carries in its waters valuable silt, which, in the rainy season, by inundation, is deposited on the flat rice growing area of Central Thailand. This area is considered the greatest rice production region of the Kingdom, and the rice produced here is of the best quality. The four rivers of the North are finally united to become the Mae Nam Chao Phraya at Pak Nampho*. As the Chao Phraya River flows along the central plain, several branches break off from the main stream and they are called by many different names. The practice of giving a river different names at different parts of its course is common in Thailand and especially in the central plain, where it obtains even for short canals. The three rivers of the area south of Latitude 18° are joined up by canals or khlongs which are used for irrigation as well as drainage and transportation.

*A small town in Nakornsawan Province.

The Mae Klong and its tributaries flow along the western side of the Central Thailand. The banks of this river are steep and covered with dense evergreen forest. Rapids and waterfalls abound. The upper reaches of the river are magnificent and are famous for the beauty of their scenery. The river is broad and serious floods are common.

The area south of the Chandhaburi Mountains is drained by numerous streams, notably the Mae Nam Chandhaburi. This area is close to Cambodia. The coast of this part is much indented and closely fringed with rocky and jungle-clad islands. The famous Ko* Si Chang which lies near the northeast corner of the Gulf of Thailand, forms a good natural shelter for large steamers which could not cross the bar of the Mae Nam. Nowadays though the bar has been removed, this island still remains important as an external harbor.

3. Eastern Thailand. Eastern Thailand consists of saucer-shaped plateau in the south east and a narrow strip of swampy country in the north. This area is bounded on the north and the east by the River Mae Khong, on the west by the Petchabun** Mountains and Dong Phaya Yen***, and on the south by the San Khampaeng Range and the Dong Rek

*Ko is the name for island in Thai language.

**Province

***Forest

Scarp. It is drained entirely by the river system of the Mae Nam Mun, the Mae Nam Pho, and the Mae Nam Chee which flow into the River Mae Khong. Rice cultivation is distributed throughout the area, especially the area along the rivers. In this part of Thailand, the cultivation of rice is uncertain due to the relatively low annual rainfall, coupled with the low fertility of the pinkish and grayish brown sandy soils. The plateau is flooded during the wet season and the cart tracks are impassable; in the dry season there is a great scarcity of water. The average rice yield is considered to be the lowest of the whole kingdom.

4. Southern or Peninsular Thailand. This part of Thailand is a long peninsula extending from the head of the Gulf, in Latitude 13° , down to the Federated Malay States, in Latitude $2^{\circ}30'$ ($5^{\circ}30'$). Its breadth varies from 50 to 200 kilometres and the length is 750 kilometres. The area consists of medium-height mountains and numerous small streams flowing either in a northerly or in a southerly direction until they find a passage to the sea. There are few bays on the east coast of the Peninsular and the islands are also few in number. On the west coast, there are no harbors or safe seaways deep enough for ocean liners. Rice cultivation does not predominate here since people engage for the most part in mining and fishing. Rice land is usually located along small river valleys and the coastal plains. The most important island is Ko Phuket which is the centre of the

tin industry.

Climate and Natural Resources²

With respect to the general climatic condition, Thailand is under the influence of monsoon winds of seasonal character. During the northeast monsoon, from November to February, cold dry air from the China mainland comes into the country, but the cold air is considerably modified as it moves to the south. From May to September the southwest monsoon brings a stream of warm moist air from the Indian Ocean, causing abundant rain over the northern, northeastern, and central parts and over the west coast of the southern part. The climate of Thailand may be divided into the following four seasons:

1. Winter, or northeast monsoon season, from November to February. This is the coolest period of the year.
2. Summer or pre-monsoon season, (in March and April). It is hottest in April when the average temperature reaches the maximum point around 100.4°F and even higher in some parts of the country. This is known as the transitional period from the northeast to the southwest monsoon.
3. The rainy season or southwest monsoon season is from May to September. The southwest wind from the Indian Ocean causes abundant rainfall over nearly the whole country. The peak of rainfall usually occurs in September. In Peninsular or Southern Thailand there is a double rainy

season - one during the southwest monsoon and the other during the northeast monsoon. However, the annual rainfall is moderately high over the greater part of the country. Even in the dry region, the average annual rainfall is around 1,279 mm (49.6"). The remarkable wet regions are located in the western and south western part of Thailand with an average annual rainfall more than 2,794 mm (110"). It is the transitional period from the southwest to the northeast monsoon season.

The temperature varies somewhat in the different parts of the country during a certain period of time. The temperatures over upper Thailand are much colder during winter than in Central Thailand. In the southern part of Thailand, temperatures are generally 72-90°F throughout the year.

Thailand rarely experiences the cyclonic storms in their typhoon intensity because the mountain ranges help to reduce the strength of such disturbances before they reach the country's borders.

Agriculture

Agriculture is considered the most important resource of Thailand. The relatively abundant rainfall along with the great alluvial plain indicates that one can employ agriculture in almost every part of Thailand, more or less successfully, depending upon the climatic and geographical conditions. Of the total area of the country about 58

million Rai* or 18.34 per cent is farmland. About 65 per cent or 37 million Rais of the farmland are under rice cultivation.³ Rice has been considered the most important crop of Thailand for a very long time. Its export is many times greater than all other crops combined together. The other important economic crops which contribute to the export trade of the nation are: corn or maize, cassava, chili-pepper, fiber crops (especially jute), peanuts, beans, sugar cane, cocoanut, cotton and tropical fruits of various kinds. Although rubber does not require so much field tillage, it is still a plantation crop and is second to rice in the value of export. Rubber planting is mainly done in southern provinces with the exception of some provinces on the eastern coast. Most of the rubber plantations in Thailand are in the form of small holdings averaging about five acres each and they are managed on a "hand-to-mouth" basis.

Livestock production is also important since farming in Thailand depends largely upon animals, especially water-buffalo and cattle. Besides, they are the chief means of transportation in the rural areas. Exportation of livestock to foreign countries has been the aim of the present government. With the progress made in the field of livestock production under scientific methods, Thailand is hoping to supply not only hoof animals but also dressed meat to its neighboring countries in the near future.

Extractive Industries

* 6.25 Rais = 1 hectare or 2.741 acres.

The natural resources of Thailand rather than agriculture can be divided briefly into 3 categories: the water resources, the forest resources and the mineral resources.

Fishing ranks next to agriculture in extent and value among the basic industries of the country. It is regarded not only as the source of indispensable food but also as a source of revenue to the Government. From early times fish has been a prominent element in the diet of the Thai. In fact fish has been the most important animal food of the people and, with rice and fruit, has afforded a cheap ration which would be well-balanced if a sufficient quantity of fish were regularly eaten. The fish in Thailand is of two different types: marine fish and fresh-water fish. Thailand's marine fishing grounds comprise about three-fourths of the shore waters of the Gulf of Thailand and a long section of the eastern shore of the Indian Ocean between Burma and Malaya, the total length of this coast line extending over 2,500 kilometres at its constricted mouth and 800 kilometres in maximum length. These waters provide useful products which are extensively sought for local use and for export. There are a vast number of fish. Among them are some of the best and commercially most valuable fish of tropical seas. The most valuable marine fish of Thailand is called "pla tu" and is of the mackerel family. The fresh-water fishing grounds include many large interior rivers, of which

those in Central Thailand form, with innumerable canals, an extensive network, including many lakes and swamps, and streams of large volume, in all of which valuable fish are found. Thailand's fresh-water fish are of high food value and of excellent flavor. Some are peculiar to Thailand, others have a wide range extending from China to India and throughout the Malaya islands. The fish that are most numerous as to both species and individuals are the members of the great carp family (Cyprinidae). The marketing of fish has traditionally been done through middlemen, not being done directly between the fishermen and the consumers. Fisheries in both fresh and salt waters are subject to the control of the Central Government, and all fishermen have to have licenses and to pay fixed annual fees. Certain preserved products entering into foreign trade are subject to an export tax.

Forest resources originally, are a gift of nature. According to the latest estimate, Thailand's total forest area is approximately 321,289 square kilometres or 62 per cent of the total land area of the country. The forests in Thailand are of different types namely the Tropical Evergreen Forests, Coniferous Forests, Mangrove Forests, Deciduous Forest and Mixed Deciduous Forests. Teak, which ranks fourth among the chief items of Thailand's exports, and many valuable timbers known in international trade are derived from those forests. It is logical therefore that the economic program

of the Government should include and emphasize the proper management of the forests. The FAO* Mission in Thailand also recommended in the year 1948 that active steps should be taken to ensure the perpetual and prosperous forest wealth of the country. Forest Reservations, an Inventory, a Working Plan, and Forest Plantations, especially for teak, are being carried on in full swing at present by the Royal Forest Department.

TABLE 1 (1)

Export of Forest Products in 1954

<u>No.</u>	<u>Product</u>	<u>Export Value</u> (Baht: million)	<u>Percentage</u>
1	Teak	211.4	52.12
2	Sticklac	155.4	38.32
3	Yang	25.8	6.36
4	Charcoal	6.5	1.60
5	Damar gum	5.9	1.45
6	Yang oil	<u>0.6</u>	<u>0.15</u>
	Total	<u>405.6</u>	<u>100.00</u>

Source: Barton, Thomas Frank and Senanarong, Sawat: The Economic Geography of Thailand. Bangkok, Vuthiseuksa Vocational School, 1958. p. 110

*Food and Agricultural Organization of United Nations.

Thailand's principal mineral commodities are tin, tungsten, lead, zinc, antimony, and gold, all of which are produced mainly for export; also iron, manganese, building stone, road and cement materials, clay, gemstone, gypsum, quartz and feldspar, slate, soapstone, coal, and asphaltic sands which are produced for domestic use. Other commodities such as oil, copper, asbestos exist in undeveloped areas. Factors which hinder the mineral development are inadequate access roads or other transportation facilities; deep tropical soil cover, dense vegetation, and rugged terrain - all make prospecting difficult. The country also lacks of efficient mining equipment and is inexperienced in effective mining methods. Tin ore is the most important mineral of Thailand. In 1940, the year of greatest output, 17,116 longtons of metallic tin were produced. Production declined markedly during World War II but rose again in 1949 to the prewar level. In 1955 as shown in Table I (2) the production was 11,023 longtons which was equivalent to approximately 50 per cent increase. Almost all the deposits are in the Southern or Peninsular Thailand and in a narrow band along the Burmese frontier.

TABLE 1 (2)

PRODUCTION OF TIN ORE DURING 1942-1946
and 1947-1955

<u>Year</u>	<u>Longtons</u>
1942	7,833
1943	5,840
1944	3,296
1945	1,775
1946	1,056
1947	1,401
1948	4,240
1949	7,815
1950	10,366
1951	9,502
1952	9,479
1953	10,127
1954	9,932
1955	11,023

Source : Barton, T. Frank and Senanarong, Sawat; The Economic Geography of Thailand. Bangkok, Vuthiseuksa Vocational School, 1958. Table 46, p. 175.

Population⁴

During the time of Kublai Khan around the thirteenth century, the Thai tribe moved down from its original

location in the South of China (known as Yunan Province) to settle in the so-called Indo Chinese Peninsula and named this area with respect to its prosperity "Siam" (golden or prosperous land) but the people of Siam still called themselves "Thai." This is the reason why later on the name of this country was changed to "Thailand" which refers to the land of the Thai. Though very little is known of the first races to inhabit Siam, it is still possible, however, to classify most of the people in one or the other of the main groups. According to the present knowledge the people of Thailand may be classified as follows:

1. Negrito (Semang). Very few now remain in Thailand. These pastoral people do not build themselves permanent houses and no form of cultivation is practiced. The Semang depends on wild fruits and roots and on hunting for food.

2. Austronesian - Malay. There are about 400,000 Malays living in Thailand, most of them in the southern provinces. They are all Mohammedans, but are much less strict in the observance of the tenets of their religion than most other Mohammedan races. A number of them are good fishermen and prefer to make deep-sea voyages. The Malay also cultivate rice in much the same way as the Thai.

3. Mon - Khmer. There are different groups of the Mon - Khmer living in Thailand such as Sakai, Lawa, Kamuk, So, Khmer, and Mon. The Khmer or Cambodians and the

Thais are naturally much alike, though the Khmer generally are of a somewhat darker complexion. The total number of Khmer in Thailand territory cannot be much less than 160,000 individuals. They still retain their own language while the Mon, scattered in several villages throughout Thailand, have completely forgotten their mother tongue. Most of them are engaged in rice cultivation and fishing.

4. Thai. It has already been mentioned that the original home of the Thai was in South China and now many Thai speaking people have still remained there. Altogether the Thai race must be not less than 24 millions, of which only 9 millions are in Thailand; the remainder live in China, Indo-China and the Shan States. No doubt, in their progress from their northern home, the Thai have mixed with the people they found occupying the land before them. In this way they have received considerable infusion of Mon and Khmer blood, and more recently of Chinese. The result is the modern Thai who are living in Bangkok today. The Thai language or King's Thai is generally used within the so-called seven Inner Circles which are the areas between the town of Uttaradit in the North and Petchaburi in the south and from Kanchanaburi in the west to Saraburi in the east. The population south to Petchaburi speaks a peculiar dialect, a sort of "clipped" tongue, called "pasa chao talae." In the northern part, people speak Lao which differs very little from Thai. The Lao of Thailand do not call themselves Lao but Thai.

5. Chinese. The number of Chinese in Thailand is officially given as 3,000,000. Most of them live in the larger towns, in the fishing villages along the coast, or in the mining district.

Most of the Thai people are Buddhist, but the opinion as to when Buddhism came to Thailand is still divided; some believed it was introduced by King Asoka the Great of India while others think that Buddhism was introduced to Thailand as recently as at the Suknothai period*. The practice of the Buddhist religion in Thailand is of the so-called "Hinayana Buddhism".

Population Growth

Before 1910, the population of Thailand was enumerated only by estimation. Bishop Pallegoix estimated that in 1854 Thailand had population around 5,000,000-6,000,000⁵. The first nationwide census was taken in the year 1909-1910, and up to the present time the census has been conducted six times altogether. The most recent nationwide census had been done in 1956. The population of Thailand is approximately 22 million today.

*Suknothai is the first Kingdom founded in Siam by the Thai people around 1254. Now it is a ruined city on the upper Mae Nam Yom.

TABLE 1 (3)

POPULATION OF THAILAND IN THE YEAR OF CENSUS 1910-1956

Year of Census	Population (in million)
1910	8.149
1920	9.207
1930	11.506
1938	14.464
1947	17.442
1956	22.811

Source: Central Office of Population Register, Department of Interior: Number of Inhabitants in Thailand. Bangkok, 1956. p. 1.

Thailand is not densely populated in relation to other countries in Asia. There are fourteen provinces out of the total seventy-one which have less than 20 individuals per square kilometre.* The most densely populated area is Bangkok where there were 1,236 individuals per square kilometres in the year 1953.⁶

According to the data compiled by Government offices, the majority (about 85%) of the population in Thailand is engaged in agricultural occupations and rice cultivation has been their main occupation for centuries.

*1 square kilometre = 0.368 square miles

TABLE 1 (4)POPULATION, BY OCCUPATION, IN THAILAND (IN MILLIONS)FOR SELECTED YEARS (1929-1954)

Occupied		Agriculture		Others	
Year	Population	Number	Per Cent	Number	Per Cent
1929	7.519	6.327	84.15	1.192	15.85
1938	6.823	6.044	88.24	.770	11.76
1947	8.992	7.623	84.78	1.369	15.22
1954	10.200	8.792	88.00	1.228	12.00

Sources: Thailand, (Central Statistical Office): Statistical Year Book No. 18, p. 21, 22. Bangkok, Karn Rotphai Press, 1947. p. 88, p. 80 and p. 54 respectively.

From Table 1 (4), the percentage of population engaged in agriculture in 1938 is rather high because the working population of this year includes persons aged 10 years upwards. In 1947, only persons of 14 years old up are included. No information is available either before the year 1929 or after the year 1954. Though animal husbandry, forestry and fishing are also classified as agricultural occupations, the population engaged in these three sub-occupations is small in number. In the year 1938, only 22,000 and 37,000 were engaged in forestry and fishing respectively? As for animal husbandry, this occupation is rather new to the Thai people and it is not popular in Thailand.

Education

Thailand's educational system has been westernized since the mid-nineteenth century when King Rama IV of the Chakri dynasty* was on the throne. There are five levels in the national system of education, namely Pre-primary Education, Elementary education, Lower and Higher Secondary Education, Pre-University Education, and University Education. The purpose of the educational system is to provide for the people academic education, moral education, physical education, and skill in handicrafts, thus rendering them democratic in their outlook and capable of earning their living. Elementary Education is divided into four grades and is compulsory according to the Compulsory Primary Education Act whereby all Thai children between 7 to 14 years of age must go to school. The other levels of education are not compulsory. The importance of education is clearly understood and the Government has planned not only to supplement primary education but also to promote education of higher levels and vocational education. Thailand has received financial help and services of technical assistants from the United Nations Educational Scientific and Cultural Organization (UNESCO) and the United States ~~Foreign~~ *Operation Administration* (USOM) in the education field. The highest level of education, university education, is remarkably small compared to the total population of the country. However, the present

*The present dynasty of Thailand.

Government is continually trying to improve the educational standard. Often there are scholarships and fellowships granted by the Government to officials and students to study abroad. In brief, everything is done to promote the nation's education so that the future citizens may profit from it and become intelligent and useful men and women.

Government

The first Thai Kingdom on the present area of Thailand which was called "Suknothai," was founded around the thirteenth century. The system of government up to the beginning of the twentieth century was absolute monarchy. All powers were vested in the King. He appointed his sons, brothers, highly trusted officials to be governors of provinces. These governors had full powers and responsibility in their areas. On June 24, 1932, the "Promoters" - a group of young civil, military, and naval officers, most of them were western-educated - seized the powers from the King in a bloodless coup d'état. Since then the system of Government has been a Constitutional Monarchy. According to the Constitution, the King exercises legislative power by and with the advice and consent of the Assembly of the People's Representatives, executive power through the Council of Ministers, and judicial power through the Courts. The Assembly of People's representatives consists of two categories of members. The first category members are elected by all the Thai people over 20 years of age. Every province has at least one representative. There

will be one representative for every 150,000 individuals. The latter is appointed by the King with the advice and consent of the Council of Ministers. Following the coup d'état in 1958, the Assembly of Representatives was temporarily dissolved. Under the new regime of Field Marshal Sarit Thanarat, all powers are in the hand of the Prime Minister. There are 14 Ministries at present such as Ministry of Finance, Defense, Interior, Economic Affairs, etc. Each of them is divided into 6 or 7 Departments. As to the Courts, the King retains the power to appoint, transfer, and remove judges on the recommendation of the judicial Commission. At present Thailand is divided into 71 provinces.

Every province comprises 5 or 6 districts, each of which is in turn sub-divided into villages. A village is a group of hamlets which consist of a group of houses with a population of about 200. In each province there is a Governor, who is appointed by the Minister of Interior to take full responsibility for all administration in his own province. A District Officer is also appointed by the Minister of Interior for every district. There are two Headmen for one hamlet; one being appointed by the Government and the other being elected by the people in that hamlet. They work together and have a function of carrying the Government orders to the people and at the same time represent the people of their own areas.

Structure of Economy⁸

The prosperity of Thailand's economy has depended

largely upon the production and export of rice, tin, rubber, teak and other agricultural crops. Like all other primary producing countries, the economy of Thailand has always been vulnerable to fluctuations in external markets. Agriculture contributes more than half of the national income and 85-90 per cent of the exports. Manufacturing, on the other hand, accounted for less than 10 per cent of the gross national product before 1951; and this percentage was only 12.5 in 1956. It takes place in a large number of small and medium sized establishments. Large factories* are found only in certain fields namely, cement, tobacco, tin-mining, sugar, liquor, beer, soap and burlap bags.

*Large factories - annual production of million units up. For example the annual production of sugar industry is not less than 3,000,000 kilograms.

TABLE 1 (5)

PERCENTAGE DISTRIBUTION OF GROSS NATIONAL PRODUCT

	1951	1952	1953	1954	1955	1956
1. Total Agriculture	55.2	48.9	46.5	43.0	43.0	42.4
Agriculture (including livestock)	45.9	39.5	37.2	33.4	34.8	34.8
Fisheries	4.2	4.7	4.7	4.9	4.1	4.5
Forestry	5.2	4.7	4.5	4.7	4.0	3.1
2. Mining	1.9	1.9	1.6	1.7	1.5	1.6
3. Manufacturing	11.4	11.7	12.3	12.6	12.2	12.5
4. Construction	1.6	3.0	3.0	3.0	3.0	3.2
5. Electricity and Water Supply	0.1	0.1	0.1	0.2	0.2	0.2
6. Wholesale and Retail Trade	13.6	15.5	15.0	17.4	19.0	18.9
7. Banking and Finance	3.4	3.5	4.1	4.4	4.1	4.3
8. Communication and Transportation	3.2	4.0	4.9	5.9	4.9	5.2
9. Services	<u>9.3</u>	<u>11.3</u>	<u>12.4</u>	<u>12.3</u>	<u>12.1</u>	<u>11.7</u>
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Kantabutra, Bunnhit: The Economy and National Income of Thailand. Bangkok, The Bangkok Technical Institute, September 1959. Table B, p. 35.

Thailand's exports and imports are about the same value annually. (About 7,000 - 8,000 million baht in recent years.)

TABLE 1 (6)

International Trade in Merchandise

No. Commodity	Import CIF value Baht (million)			Export FOB value Baht (million)		
	1956	1957	1958	1956	1957	1958
1 Food	611.8	693.6	781.1	3,454.6	4,155.2	3,597.7
2 Beverages and tobacco	170.2	203.4	197.2	63.3	108.2	94.1
3 Crude materials	79.5	73.6	72.6	3,029.6	2,848.6	3,363.1
4 Mineral field	775.1	928.1	901.1	75.7	97.9	146.5
5 Animal and vegetable fat	28.4	19.2	24.7	10.7	8.7	6.5
6 Chemicals	654.0	753.8	757.0	15.9	20.9	10.4
7 Manufactured goods	2,977.8	3,148.9	2,964.1	144.2	143.8	105.8
8 Machinery and transport equipment	1,522.9	1,907.2	1,860.8	51.6	36.5	47.4
9 Miscellaneous manufactured foods articles	552.1	491.2	469.6	35.1	33.6	16.9
10 Miscellaneous	282.9	317.7	208.6	42.2	85.8	57.9
Total	7,655.1	8,536.9	8,237.0	6,923.2	7,539.5	6,446.6

Source: Thailand. Annual Report of the Ministry of Economic Affairs, 1959. Bangkok, Commercial News Press, 1959. p. 41

Thailand's main trading partners are Japan, the United Kingdom, Malaya, Singapore, Hong Kong, and the United States.

TABLE 1 (7)

Principal Destinations of Exports

Country of Destination	1939	1954 Million Baht	1955	1956
United States	2.8	1,345.9	2,097.2	1,723.5
United Kingdom	5.2	126.1	168.5	217.3
West Germany	3.2	32.1	82.4	99.4
Netherlands	4.1	212.5	210.1	209.4
Singapore	61.8	963.4	858.6	982.5
Malaya	3.8	210.9	406.8	1,918.6
Japan	12.3	1,322.0	1,254.7	642.2
Penang	62.9	400.2	428.9	575.7
Hong Kong	24.1	493.8	603.8	587.6
Others	44.0	999.0	1,009.5	880.8
Total	222.2	6,105.9	7,120.5	6,937.0

Source: National Economic Council: Monthly Bulletin of Statistics. Bangkok, Karn Rotphai Press, 1956. p. 44

TABLE 1 (8)

Principal Countries of Origin of Import of Thailand

Country of Origin	1939	1954 Million Baht	1955	1956
United Kingdom	79.5	989.7	830.9	877.1
United States	13.3	1,174.5	1,444.6	1,173.9
Japan	18.7	1,090.4	1,378.5	1,260.2
Hong Kong	1.4	169.0	754.8	1,194.9
Singapore	1.4	50.4	502.9	574.8
Penang	10.3	9.8	221.8	257.5
Netherlands	5.0	656.1	616.4	209.4
West Germany	6.5	373.6	438.9	99.4
Others	69.7	1,958.0	1,313.8	1,923.8
Total	205.8	6,471.5	7,502.6	7,571.0

Source: The National Economic Council: Monthly Bulletin of Statistics. Bangkok, 1956. p. 45.

However, the prospects of Thailand's economy are favorable. The Thai currency which is called the baht or tical is considered a strong currency both internally and externally. The exchange value is relatively stable and the exchange rate has been around 59.45 baht per pound sterling or 21.19 baht per U. S. Dollar. There is as yet no significant population pressure. During the past several years, Thailand has been able to increase steadily its exports of rice, rubber, teak, and tin while exports of other commodities have also increased more rapidly. Besides, there is now some interest in Thailand as a locale for investment and therefore some prospect for significant industrial growth.

Introduction to Rice

Rice may be divided into 3 broad categories, by stages of processing, namely paddy (or rough rice), husked (or brown rice) and milled rice. From the early time up to the nineteenth century, rice ranked third among the most important grains being produced throughout the world; its amount was exceeded only by that of wheat and corn. The significance of rice has been evident not only in world diet but also in international trade from time immemorial. Rice has been regarded as a vital food for world population, especially for the people in the eastern hemisphere. These people depend almost entirely upon rice as their

staple food. In recent years, world rice consumption clearly shows an increasing trend.⁹ Per capita consumption of rice continues to increase. In 1952 the rice eating population in Mainland China was well over 300 million and consumed about 50 million tons of paddy a year. The rest of the Far East had a total population about 750 million, of which around 650 million ate rice. About 100 million tons of paddy were used and the average of some 275 grams of milled rice per capita per day is consumed in this area. According to the estimate of the Food and Agricultural Organization of the United Nations, the average per capita consumption of rice at present is about 15 per cent higher than the per capita consumption of rice in the years 1948-1952.

Owing to the growing significance of rice in the world's diet, recent data of world output show that rice is the most valuable of them all. Its importance exceeds not only other crops such as wheat, corn, and cotton but also crude materials such as coal, crude petroleum, etc. The world output of paddy, reported by the FAO at the Seventh Session of the FAO Conference in November-December 1953, was over 170 million tons which is equal to some 110 million tons of milled rice.¹⁰ Since rice is considered as the main foodstuff of almost every country in Asia, about 93 per cent of world rice production has taken place in Far Eastern China, India, Burma, Thailand and other countries of

eastern Asia. The bulk of rice is produced in Far Eastern countries which lie between the Equator and 30° north Latitude, so-called Monsoon Asia. In fact rice can be grown in no less than 90 countries, extending from 45° north Latitude to 40° south. From estimates of the U. S. Foreign Agricultural Service along with the reports of the rice producing countries outside the Communist area, we know that world rice cultivation in 1959-1960 continued to expand.¹¹ However, the world production of rice for 1959-1960 was below the previous year due to the drop in Communist China's output (of Asia's 93 per cent of world rice production, 40 per cent is the production of Red China which accounts for one-third of the world total).¹² (See Table 1 (9) on page 42).

The percentage of rice production that enters into international trade is far less than that of other primary products such as cotton, and wheat, since most rice is consumed within the country of production. Milled rice, as a commodity, has been classified into three general types:

1. Long-grained - this variety has a thin kernel and is about three times as long as it is thick. Long-grained rice is grown in China, Thailand, and Indo-China. When matured, it can be milled without excessive breakage.

2. Medium grained - about two and one-third times as long as it is thick. Though this type is relatively short and hard, it can be milled with very little breakage.

3. Short-grained - this type has a hard kernel, and therefore produces a very large percentage of unbroken kernels or "head rice" when milled. It is of Japanese origin and is less than twice as long as it is thick.

As the importance of rice as a basic food is increasing year by year, even short-grained types are increasing their exports. In 1958 the export of both long-grained and short-grained varieties from Mainland China increased, largely to Pakistan, Malaya, Indonesia, European and African countries. The world's important exporters are Burma, Thailand, the United States, China, Indo-China, Taiwan, Egypt, Italy, and Spain. The world rice market in 1959 was favorable from the standpoint of most rice exporters. The amount of exports from the United States, Burma, Viet Nam, Thailand, and Cambodia, etc., exceeded those of 1958. However, exports were down from Red China, Italy, Spain, etc. The reduction was due largely to the limitation of supplies rather than the inability to find customers in the world markets. The United States also plays an important role in the international trade of rice. The total export of the United States in 1959 was about 13 per cent of the total world trade, a 7 per cent increase over 1958. Hence the United States ranks third among the important exporters. Substantial increases in rice exports were expected in 1960, both from dollar sales and sales for foreign currencies under Title I of Public Law 480.

TABLE 1 (9)

World Production of Rough Rice (in Billions of Pounds)

Crop Year	Brazil	Burma	China	Indo China	India	Japan	Indo-nesia	Korea	Paki-stan	Philip-pines	Tai-wan	Thai-land	U. S.	World Total
1946	6.0	8.8	191.4	9.5	92.9	25.2	12.2 ⁷	5.2		4.9	2.7	7.7	3.2	314
1947	5.6	12.8	102.5	13.1	66.5	24.9	12.4 ⁷	5.9	25.0 ⁶	4.9	3.2	10.4	3.5	328
1948	5.6	10.7	106.3	12.8	76.0	26.4	13.3 ⁷	7.8	28.3	5.5	3.3	12.1	3.8	345
1959	7.0	11.4	98.1	12.2 ³	77.3	25.7	12.8 ⁷	6.8	27.4	5.7	3.8	14.7	4.1	338
1950	7.0	12.5	103.5	7.3 ³	70.0	26.4	20.7	6.5	27.6	5.8	4.2	15.0	3.9	236 ⁸
1951	6.5	13.7	98.0	8.5 ³	75.0	24.8	21.8	5.6	26.0	6.2	4.4	16.1	4.6	241 ⁸
1952	6.8	14.6	141.1	8.4 ³	84.0	27.2	23.1	6.4	27.4	6.9	4.5	14.6	4.8	400
1953	7.4	14.0	143.3	8.7 ³	93.5	22.6	25.6	7.1	30.8	7.0	5.1	18.2	5.3	421
1954	8.2	14.8	132.9	7.8 ³	84.0	25.0	24.2	7.2	28.3	7.1	4.6	12.6	6.4	400
1955	7.7	14.4	145.5	9.9 ³	91.2	34.0	24.8	7.0	24.2	7.2	5.3	16.2	5.6	428
1956	9.2	15.7	145.0	11.2 ³	95.1	29.9	25.2	6.0	30.4	7.4	5.3	18.3	4.9	440
1957 ¹	8.9	13.0	150.0	10.1 ³	94.0	31.4	25.5	7.4	28.5	7.0	5.3	12.6	4.3	425
1958 ¹		16.0	175.0	11.1 ³	91.0	33.2	26.8	7.7	28.0	7.6	5.4	15.7	4.4	480
1959 ¹		18.8	160.0		102.0	34.0		7.5	28.1			16.5	5.3	471

1. Preliminary
2. Estimated
3. Excludes North Viet Nam
4. South Korea
6. Excludes India
7. Java and Madura only
8. Excluding Communist China, North Korea and USSR
9. South Viet Nam, Cambodia, Laos

Source: (1) The Commodity Year Book of 1959. New York, Commodity Research Bureau, Inc., 1959, p. 279.

(2) The Commodity Year Book of 1960. New York, Commodity Research Bureau, Inc., 1960, p. 277.

TABLE 1 (10)

<u>Rice Milled: World Exports Average 1946-50, Annual 1951-59</u>					
Year	U.S.	Burma (Million Metric Tons)	Thailand	Others	Total
1946-50	0.4	1.0	0.9	0.9	3.2
1951	0.5	1.3	1.5	1.9	5.2
1952	0.8	1.3	1.5	1.7	5.3
1953	0.8	1.0	1.4	1.4	4.6
1954	0.6	1.5	1.2	1.6	4.9
1955	0.5	1.6	1.3	2.3	5.7
1956	1.0	1.9	1.3	2.4	6.6
1957	0.8	1.3	1.6	2.5	6.2
1958	0.6	1.4	1.1	2.9	6.0
1959	0.7	1.8	1.1	2.6	6.2

Source: Foreign Agricultural Service, United States Department of Agriculture: Foreign Agricultural Trade, Outlook, Charts 1960. Washington, United States Government Printing Office, 1959. p. 52.

Rice importing countries are those countries which do not produce rice at all or countries which produce insufficient amounts of rice for domestic consumption. The following Table 1 (11) indicates that there are almost four times as many countries which import rice, as there are those which are normally exporters.

TABLE 1 (11)

Rice Trading Countries Grouped by the Size of
Their Annual Rice Trade

Size of Trade Metric tons	Exporters Number of Countries	Importers Number of Countries	Both	Group's percentage of world rice trade in 1948-1953	
				Exporters	Importers
over 1,000,000	2	2	1	57	32
100,000-1,000,000	8	10	1	35	49
50,000-100,000	3	8	0	2	5
10,000-50,000	6	24	4	6	14
less than 10,000	7	52	12		
	26	96	18	100	100

Source: United Nations: The Stabilization of the International Trade in Rice. Rome, Food and Agricultural Organization, 1955.
p. 10.

International trade in rice fluctuates from year to year due to the difference in the size of crops, which in turn depends mostly on national factors and wars. Some countries may be rice exporters at one time and may import rice at other times. Most of the severe fluctuations have clearly been caused by wars. Table 1 (12) and Table 1 (13) show the frequency of annual fluctuations of some exporters and importers of rice since 1930.

TABLE 1 (12)

Frequency of Annual Fluctuations in Exports of Rice
from Selected Countries 1930-53

Extent of Fluctuations ¹	Burma ²	Thai- land	U.S.	Italy ³	Indo- China ⁴	Korea ⁵	For- moza ⁶	Egypt ⁷	Bra- zil
%	Number of years								
5	6	4	3	3	3	2	4	2	3
10	3	2	2	2	3	2	1	1	-
15	-	3	3	5	4	3	2	-	1
20	1	2	1	2	1	1	5	1	1
25	1	3	4	2	1	-	8	-	-
30	-	8	-	1	1	-	8	2	1
35	1	8	6	3	2	1	-	8	2
40	-	9	1	-	8	9	-	-	-
45	-	9	9	-	1	1	1	3	10
50	1	-	1	-	-	9	-	2	8
55	-	8	-	-	9	-	-	2	-
60	-	-	-	-	-	-	-	1	1
65	-	-	-	-	2	-	-	9	1
70	-	-	-	-	-	-	1	-	8
75	-	-	-	-	-	-	-	-	-
80	-	-	-	9	-	-	-	-	-
85	-	-	-	-	-	-	-	-	8
90	-	-	2	1	-	1	8	-	-
95	-	-	-	1	-	-	-	-	-
100	-	-	-	-	-	-	-	10	4
	13	24	24	20	21	13	21	22	24

1. Each year's decrease is expressed as a percentage of the previous years; each year's increase is expressed as a percentage of the exports of the year considered.
2. 1930-34 and 1941-46 not available.
3. 1944-46 not available.
4. 1943-44 not available.
5. Year in which net exporter only.
6. 1946-47 not available.
7. 1944 not available.
8. Including one war year.
9. War years 1941-46.
10. Including two war years.

Source: United Nations: The Stabilization of the International Trade in Rice. Rome, Food and Agricultural Organization, 1955, p. 10

TABLE 1 (13)

Frequency of Annual Fluctuations in Imports of RiceWorld and Selected Countries 1930-53

Extent of Fluctuations	World	Malaya ²	Cey- lon	Indo- nesia ³	Japan	Cuba ⁴	Philip- ines ²	In- dia ⁵	China ⁴ (Main- land)
%	Number of Years								
5	8	8	11	1	3	63	1	-	1
10	6	3	3	-	66	5	2	2	1
15	2	5	64	1	1	4	-	2	1
20	63	2	1	6	63	74	2	3	-
25	-	-	-	2	63	4	-	5	2
30	81	-	81	2	1	1	-	2	73
35	1	-	-	-	1	-	1	1	-
40	-	-	62	1	-	-	-	1	2
45	-	1	-	-	-	-	1	1	2
50	81	-	81	3	-	1	-	-	2
55	-	-	81	1	1	-	2	1	63
60	-	-	-	-	81	-	-	1	-
65	81	-	-	1	-	-	1	-	-
70	81	-	-	-	1	-	2	-	-
75	-	-	-	-	-	-	-	1	-
80	-	-	-	-	-	-	-	-	3
85	-	-	-	-	1	-	-	-	-
90	-	-	-	-	1	-	3	-	81
95	-	-	-	-	1	-	-	1	-
100	-	-	-	-	81	-	3	-	-
Total	24	19	24	18	24	22	19	20	22

1. Each year's decrease is expressed as a percentage of the imports of the previous years; each year's increase is a percentage of the year considered.
2. 1942-45 not available.
3. 1941-45 not available.
4. Cuba: 1941 not available. China: 1945 not available.
5. 1943-45 not available.
6. Including one war year.
7. Including two war years.
8. War years 1941-46.

Source: United Nations: The Stabilization of the International Trade in Rice. Rome, Food and Agricultural Organization, 1955.

However, the future prospects for rice are favorable for both exporters and importers, since both demand and supply are increasing while the price tends to be relatively stable at price levels which are by historical comparison, neither extremely high or low. Table 1 (14) will indicate that the fluctuations in price were relatively moderate.

TABLE 1 (14)

Average Import Values for Milled Rice (Asia)

Year	Price (U. S. Dollar per metric ton)	Annual fluctuations %
1947	139.7	+11
1948	176.9	+21
1949	159.4	-10
1950	124.1	+22
1951	135.2	+ 8
1952	169.8	+20
1953	189.5	+10

Source: United Nations. The Stabilization of the International Trade in Rice. Rome, Food and Agricultural Organization, 1955.
p. 8.

The Food and Agriculture Organization plays an important part in attempting to improve the production and the international trade of rice in both rice exporting and rice importing coun-

tries. The FAO's International Rice Commission - IRC, which had its sixth conference in Tokyo, Japan in 1958, has dealt mainly with the improvement of rice cultivation in Asia.¹³

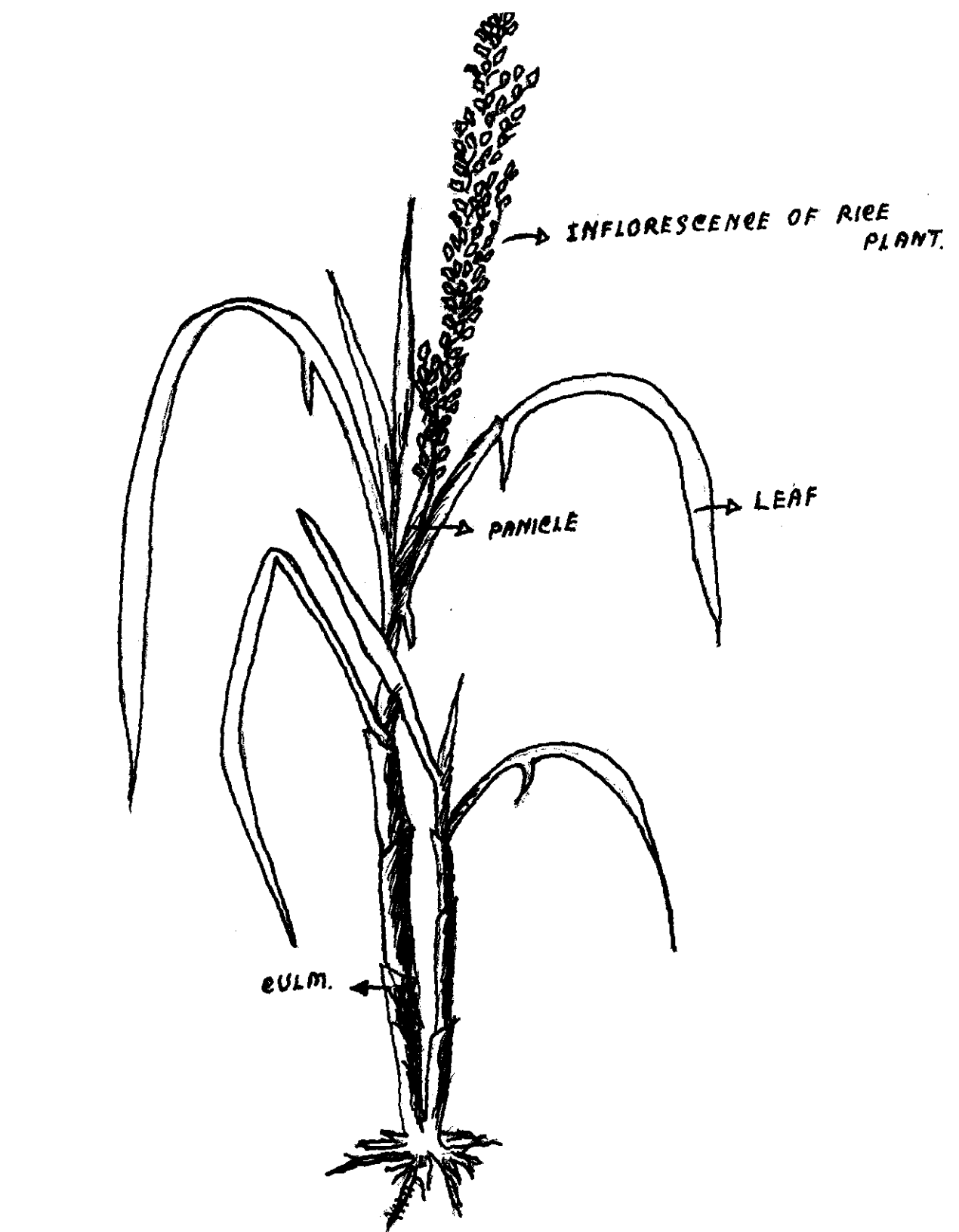
The IRC was established in 1949 for the purpose of promoting national and international activity in respect of production, distribution and consumption of rice. Its special working groups are:

1. Working Party on Rice Production and Protection
2. Working Party on Soils, Water and Fertilizer Practices
3. Working Party on Agricultural Engineering

Later on at the sixth conference in 1958 in Tokyo, Japan, the IRC also considered rice production, storage and processing. A technical meeting of marketing specialists, which was held in Indonesia in March 1959, had as its main purposes the development of cooperative marketing, processing and warehousing, and the training of marketing personnel. What the IRC aims to contribute to the rice-producing area is to improve farm management, marketing procedures and techniques of producing rice.

In the long run, the FAO commitments may result in either an expansion or a contraction of the volume of international trade and either higher or lower prices. Expansion of the volume of international trade will be likely if there is growth in the number and real income of the world's rice-consuming population or a reduction in the price of rice. On

the other hand, if the rice-importing countries, which are aiming to be more self-sufficient in rice, can achieve their goal, the volume of international trade will tend to decline. Since the FAO's activities are designed to benefit both rice-importing countries and rice exporters, the existence of this organization is not an indication of likely price and trade increases or decreases.



RICE PLANT.



CHAPTER II

THE RICE PRODUCTION OF THAILAND

Methods of Producing Rice

Of Thailand's total cultivated area of around 58,000,000 rai or 9,000,000 hectares, as stated in page 19, about 37,000,000 rai or nearly three fourths is under rice cultivation. The remaining one fourth is used to grow other crops such as cocoanuts, para-rubber, field crops, and fruit. Though it is very difficult to determine the actual number of rice producers in Thailand, since the Thai people may be occupied in many occupations at the same time, it has been roughly estimated that about 72 per cent of the total population are rice farmers. More than 80 per cent of them have their own farms with an average size of about 30 rai.*

The rice planted in Thailand is of two types, glutinous** and non-glutinous.¹⁴ Central Thailand, which is often called the Bangkok Plain, is considered to be the "Rice Bowl" of Thailand. The rice acreage in this part accounts for about 44 per cent of the total acreage and about 51 per cent of total production. The main production of the Central Region is, however, of the non-glutinous type (96 per cent). Non-glutinous rice is also the main production

*1 rai = .395 acre

**Glutinous rice¹⁵ - a type of rice which, after cooking, has a peculiar stickiness regardless of how it is cooked. It may be either short or long grain.

of the Southern Region. This part represents about 7 per cent of the total rice acreage and produces about 9 per cent of the total production. The rice season of this region is later than that of the other regions by 3 to 4 months, because it depends mainly upon the northeast monsoon rains while the others depend on the southwest monsoon.

Glutinous rice is produced mainly in the Northern and the Northeastern regions, comprising about 93 per cent of the Northern region's crop and 85 per cent of the Northeastern region's. In Northern Thailand rice is grown in the three main valleys, Chiangmai-Lampoon, Chiangrai-Lampang and Prae-Nan. (See map, page 8). The soil here is of silt loam which is relatively rich, due to the deposits of silt carried down by streams from the surrounding hills and mountains. This area accounts for 6 per cent of the total rice yield. The Northeastern part of Thailand is low in fertility. Although it accounts for about 43 per cent of the total acreage, it yields only 29 per cent of the total production.

The methods of rice cultivation employed in Thailand vary according to climatic conditions, the topography of the land, the nature of the soil and the labor available. They can be classified as follows:

1. Dry land rice which is planted by the dibbling method.
2. Wet land rice which may be cultivated either

by broadcasting, or transplanting.¹⁶

Dry land rice which can be called upland or hill rice is grown by the hill tribes. These people live near the hilly jungles where new land can be obtained only by clearing it. This is done by cutting down the trees at the beginning of the dry season and leaving them until they are thoroughly dry. Then those trees are burnt to ashes just before the rainy season. Under the so-called dibbling method, holes are made with a pointed stick and a few grains of hill rice are dropped in each hole. The holes are covered with soil by the planter's foot. The seed germinates with the first rain and the crop grows to maturity on moist soil just like other grains depending upon the rainfall and the humidity of the forest. It must be noted that dry land or hill rice cannot survive under the hot and dry wind of the open plain since it can be successfully grown only in the places where the air is sufficiently moistened by the surrounding vegetation during the interval of rainfall. All of the hill rice, however, must have a short maturing period. This kind of rice is usually grown on small pieces of land, just enough to supply a family's need. Harvesting is done with a small sickle and the grain is threshed by beating the sheaves against the side of a big basket or on a mat. The fertility of the soil is very important to the upland rice since the yield drops abruptly when the soil begins to lose its fertility and the farmers have to move to a new piece of

land. This so-called shifting cultivation is harmful to forest and soil conservation and remains as one of the problems of Thailand agriculture.

Wet land rice.

The cultivation of this type of rice requires more water than that of the first. There are two methods of cultivation:

a. The broadcasting method, practiced in both ordinary low land, and deep-water or floating rice cultivation. Each technique is intended for a particular set of climatic and soil conditions which may present themselves at the time of sowing. The usual method, and also considered as the best in broadcasting, is to plough as early as possible between February and May, depending upon occasional rainfall, and let the land lie fallow until the time of sowing at the beginning of the rainy season (May-June). Then the seeds are broadcast at the rate of 12-16 kilograms per rai. Where weed competition is very strong, the seeds are broadcast at a rate as high as 20 kilograms per rai. After sowing, the seeds are covered immediately by the second or cross ploughing which will render good protection from birds and rodents for the seeds. The seedlings also have a better hold on the soil from the start and are partially sheltered from strong winds and hot sun. Moreover, the crop usually stands up well against drought. However, the practice of this so-called usual method may not be safe because of the

uncertainty of rain. If it rains too heavily after the seeds are covered by the second ploughing, the clods may be completely broken down and the seeds will be so heavily covered that young seedlings cannot push through after germination. On the other hand if it does not rain for 15-20 days after the second ploughing, the seeds under the clods may deteriorate and the stand may be so thin that reseeding is necessary. In such a case the new seeds remain on top of the clods. Sometimes it is necessary to ~~sow~~ the seed on top of the clods when the soil is too wet and sticky.

Occasionally the farmers are faced with the problem of sowing their fields in water, sometimes standing a depth of 60-70 centimetres (24-28 inches). The soil is ploughed and puddled with harrows, and suspended soil and silt in the water is left to settle. While this is being done, the seeds are sprouted by soaking overnight in water, and covering with straw for 48 hours, kept wet by watering twice a day. The farmers then broadcast these sprouted seed. With such a broadcasting method, the farmers must be careful to see that the water in the field has been allowed to settle long enough to be clear and free of suspended silt and other matter. Otherwise the mud will settle on the young shoots, cut them off from the sun light and prevent them from emerging above the water level. The fact that water movement is essential to facilitate the oxygen supply of the root has been considered very important in the broad-

casting method of rice culture and the rice farmers must be aware of this fact. The broadcasting method is employed on about 20 per cent of the total acreage of the country, mostly confined to the Central region. Less than 1 per cent of the acreage of the Northern and of the Northeastern region is sown by broadcasting.

In some areas, mostly in the Central Plain region, the depth of water can be 3-4 metres* deep for a considerable length of time. Therefore, special types of rice called floating rice or deep-water rice must be grown, all by broadcasting methods. The total acreage of floating rice is about 16 per cent of the total rice acreage, or about 80 per cent of the acreage under broadcasting methods. These floating rice varieties have their own peculiar growth habits. They are able to cope with deep water and a sudden rise of the flood level, while ordinary varieties would not be able to survive. They have a rapid growth and send out long culms which may branch out and strike the roots at the nodes. When the water level decreases they lie prostrate and become entangled.

b. The transplanting method is simpler although it requires much greater effort and needs more available labor. This method is practiced on about 80 per cent of the total acreage of the country. Where the size of the farm is small the farmer is impelled to obtain the best possible

*1 metre = 3' 4".

yield from his land by employing the transplanting method. There are also several other factors which cause the adoption of the transplanting method, namely; rice cultivation on high level land where there is no inundation by river water and the crop has to depend entirely upon rainfall; on land that is too flat and lacks drainage, where the rain water tends to be stagnant for a long period early in the growing season; or on land where the soil contains large quantities of soluble salt. Planting here has to be postponed until late in the season in order that the salt may be washed away by rain. These conditions do not permit successful cultivation of rice by the broadcasting method. Soils in the transplanting areas are usually not soft enough for ploughing until a little while after the rainy season. The cultivator selects a suitable place near a water source for nursing his seedlings. Water is let in, by pumping if necessary, and the soil is ploughed and cross-ploughed. Sowing the nursery is done about 25-30 days before the time when it is expected that the field can be made ready for transplanting. Before sowing, seeds are sprouted in standing water. The nursery is puddled and then the water is drained off. The mud is leveled by a piece of wood and is left for a few hours to set so that when the sprouted seeds are sown, they will not sink too deeply into the mud. Otherwise the seedlings will be so tightly held that they cannot be uprooted easily for transplanting. After sowing, the nursery is left

to dry for 7-8 days. When the seedlings are well established, water is let in a little at a time. In some areas where the water is scarce and where the fields are usually covered by only a few centimetres of water, short seedlings are required. Then as little water as possible is given to the nursery plot, or the supply may be cut off entirely to keep the seedlings from growing too tall.

When there is sufficient water in the growing field, ploughing and puddling in preparation for transplanting is done while the seedlings develop in the nursery. After the seedlings are uprooted and cleaned of mud, they are separated from each other by shaking in order to facilitate transplanting. The seedlings are finally tied into bundles and carried to the field. In transplanting, the spaces between hills and the number of seedlings per hill are determined by experience to suit each particular field or each part of the field. After transplanting, the field is kept well supplied with water, except where many land crabs* are found. In that case the water has to be drained off to harden the seedlings, until they have passed the tender stage when they are liable to crab attacks. After that the water is allowed in again.

The transplanting method is employed more often and is more popular than the broadcasting procedure, since

*Land crabs are considered an important enemy of the rice farmers since they destroy the seedlings.

it gives a more uniform grain and the quality of endosperm is superior to that of the broadcast rice. This method also gives a bigger yield than by broadcasting, due to better spacing and to cleaner cultivation from a more thorough working of the soil.

The method of harvesting of the wet land rice in the Northern and Northeastern region, in general, is done by cutting the panicles with a considerable proportion of the culms attached. These are tied into sheaves and beaten against the side of a very large bamboo basket or against the threshing floor to separate the grain from the straw. For this reason, varieties of rice which will shatter easily are preferred by the cultivator. In the Central Plain the crop is cut just below the panicles and then they are tied into bundles. The bundles of rice are laid down on the threshing floor and are walked over by water-buffaloes or cattle to separate the grain from the straw. In many parts of the Southern region, harvesting panicle by panicle with a special small cutting knife is still practiced. This is the most inefficient method of harvesting because it is wasteful of time and labor. However, it is gradually being replaced by sickle harvesting, through the demonstration and extension work of the Rice Department.¹⁷

The Significant Role of Rice in the Thai Economy

Rice serves as the basic food of the Thai people

and accounts for about 42-51 per cent of the total value of the nation's exports, which is the basis of foreign credit of the Government.¹⁸ In Thai language the word "rice" and "meal" are synonymous and the Thai people and rice culture have been inseparable. Thai people, in general, live on the plains and flat valleys where rice culture can be easily practiced.

Owing to the substantial significance of rice to the country, Thailand can be called a "rice economy." An old saying that "in the water fish abound and in the fields rice abounds" indicates how important the rice is to Thailand. Thai farmers actually grow rice in all kinds of soils, sandy, loamy, or clayey, provided that water can be retained in the field long enough to mature the crop. They want to be assured that at least the yearly supply of rice for home consumption is available. The following table will show the cultivated area, the harvest area, the yield and the export of rice from 1947 to 1955.

TABLE 2 (1)

Rice Production and Export of Thailand (1947-1955)

	Cultivated Area	Harvested Area	Paddy Yield	Average Yield	Exports
Year	Hectares	Hectares	Metric Tons	Kg/ Hectares	Tons of pol- ished rice
1947	4,825,005	4,304,143	5,506,432	1,279	384,322
1948	5,211,749	4,929,905	6,835,173	1,386	803,305
1949	5,268,216	4,962,584	6,683,760	1,347	1,204,938
1950	5,539,980	5,294,625	6,781,615	1,281	1,508,286
1951	5,959,259	5,736,208	7,325,396	1,277	1,612,096
1952	5,368,121	5,130,208	6,602,089	1,287	1,442,878
1953	6,171,933	5,930,848	8,239,402	1,389	1,384,354
1954	5,557,154	4,523,861	5,708,998	1,262	1,022,640
1955	5,769,573	5,375,674	7,333,611	1,364	1,243,260

Source: "Annual Report of Rice Production and Export 1956"
Department of Rice, Ministry of Agriculture.

Rice Trade¹⁹

Thai rice has been called *one of the finest* in the world.¹⁹

The type being exported is called Na-suan rice or Garden rice which is considered the best kind of rice, having a denser grain and a glossy pericarp. According to the commercial system practiced in Thailand, milled rice is subject to grading as follows:

1. Extra special quality rice is the best grade

with long, thin grain, grayish in color and 5 per cent broken.

2. Special quality rice has the same standards as the Extra special quality, except it has 10-15 per cent broken.

3. Garden rice No. 1 is whiter in color with 25-30 per cent broken and more glutinous.

4. Garden rice No. 2 has 50 per cent broken.

5. Garden rice No. 3 is of little use since it contains a very high percentage of broken.

For domestic consumption, garden rice No. 1 is predominant in the market since its quality and price are satisfactory to most people.

In the early times, when Thailand was still a self-sufficient kingdom, there was almost no government regulation concerning rice trade. The internal trade in rice at that time was carried on entirely by a barter system in the villages; and it was subject to control by Chinese merchants with very little competition from the Thai people. Since rice production was mostly in the rural areas, there was only a one way movement of rice from those provinces to Bangkok to supply the court. The payment of rice is usually made by "Kwien".* Rice marketing involves:

1. Farmers. These are mostly small land owners as already stated in page 50. Therefore, their bargaining position tends to be weak. Though rice contributes a large

*Coyan of 16 piculs
1 picul = 132 pounds

part of the national revenue, the rice producers' share is meager. Most of them remain poor and in debt, partly due to the uncertainty of rain and partly due to their own habits. The Thai farmers traditionally have lacked thrift and industriousness, and a good harvest is usually followed by free spending and gambling. Also, they often lose their cattle through disease and theft.

2. Dealers and millers. These factors have substantial funds to finance the storage of rice in order to resell at the right time, such as during a bad crop year. They also have more experience in the trading field than the farmer.

As internal trade increased, it became clear that the marketing system needed reform in order to help the farmer. This required Government participation in the development of cooperatives. The first cooperative union was established in 1930, and in the late 1930's the Government enlarged its roles in rice trading and milling through the establishment of the Thai Rice Company.

Thailand's international trade statistics indicate that from the nineteenth century on, Thailand no longer had a self-sufficient economy.²⁰ Its economy changed to one which imported heavily and depended for foreign exchange upon the export of a few primary products of which rice was predominant. The growth of rice exports took place around mid-nineteenth century, after Thailand signed commercial treaties

with the West. At that time, the export of rice was practiced freely without being subject to Government regulation of any kind. The middleman's function between the farmer and the foreign buyers was performed mostly by the Chinese merchant community with very little participation by Western merchants. No Thai people participated, since at that time the Thai were generally willing to leave the entrepreneurship function in the hands of the foreigners. Moreover, entrepreneurs from foreign countries were allowed to immigrate and this caused a more rapid growth of the merchant population in recent years (since 1850 on) than in the early period. Since in Thailand wages were relatively high and there were plenty of unused lands, this policy seemed reasonable. Before World War II, the exportation of rice was concentrated in the British Colonies of Hong Kong and Singapore, and was, in effect, monopolized by about seven or eight British firms.

Through the years, rice experienced an increasing demand, both externally and internally. The growth of population and the increased money demand of the Thai people, along with the development of Asian economies and the opening of the Suez Canal all played a part in improving Thailand's position as a rice-exporting country.

TABLE 2 (2)

Consumption and Export of Rice

(1907-1934)

Year	Percentage of Export to Production	Picul Per Capita Average Yearly Retained Rice
1907/8-1910/11	51	1.8
1910/11-1914/15	42	2.4
1915/16-1919/20	42	2.4
1920/21-1924/25	39	2.8
1925/26-1929/30	44	2.5
1930/31-1934/35	48	2.2

Source: Ingram C. James Economic Change in Thailand Since 1850. California, Stanford University Press, 1955. p. 53.

During the war period in 1940-44 and in 1945-47, the export of rice declined substantially. On the average, only 23 per cent and 11 per cent of annual production in those years was exported. Since World War II, rice trading has been subject to governmental control, and Government plays an important role in rice trading.

Roles of Government²¹

Since rice trading in Thailand has been subject to Government control, the Government has obtained a very large profit. We may say that the role of Government in rice trading is the product of war. In the year 1946, immediately

after World War II, Thailand committed herself to the Formal Agreement signed with India and Great Britain at Singapore in January, 1946.²² It had to supply not more than 1,500,000 metric tons of rice free of charge as sort of indemnity. In order to follow its obligations under this agreement, the Government set a fixed price of 27.85 Baht per picul and rice millers had to sell to the Government at this price. This policy was known as the Surrender Program, and led to the hoarding of rice because of a higher world price. The Formal Agreement was revised in late 1946 when Thailand could not fulfill her commitment. The reduced amount of rice exported also caused a shortage of imported consumers' goods. Later a new agreement, known as the Tripartite Agreement was signed on May 6, 1946 by the Governments of Thailand, the United Kingdom, and the United States. The amount of rice that was to be handed over was reduced to 120,000 tons at a price roughly double the pre-war price. This Agreement was, however, ended on August 31, 1947. After 1947, Thailand was allowed to receive the same basic price as other exporters but as a member of the United Nations its export was under allocation by the International Emergency Food Committee (IEFC) until the end of 1949. Nevertheless, rice exports increased substantially in 1948, 1949, and 1950. The best year of rice exports was 1952 (two years after all external obligations were over in 1950).

The Government derived a substantial profit from

the rice trade in the period 1946-1950 by setting the selling price to the shipper at 20 per cent over its purchase price.

In addition, a so-called potential profit arose since the selling price to the shippers was stated in terms of foreign currency. The exporters had to surrender all foreign currency to the Government at the official rate of 12.50 Baht per U. S. Dollar* which was around 9.00 Baht lower than the open market rate. This resulted in a black market for rice exportation during this period, and corruption in official circles. The complicated export policy after World War II also caused a great deal of trouble for shippers, since they were not able to make direct contact with the millers or the exporters. Everything had to be done through the Government. Under this system, shippers often paid bonuses to the millers in order to get milled rice of specified quality when desired. Since the Government did not place any controls on the price of paddy, the millers also were faced with the problem of the rising price of paddy.

In late 1951,²³ free export of rice was allowed to a certain limit by private exporters but they still had to buy all rice for export from the Rice Office** which was a Government agency in charge of procuring rice. Therefore, we can say that the rice trade was still monopolized by the Government during the period of 1951-1954, since all rice

* 35.00 Baht per pound sterling

** See Appendix A.

millers had to sell their rice to the Rice Office at the price fixed by the latter. The rice trade monopoly by the Government is due to the fact that at the beginning of 1950 the Government began to conclude a series of trade agreements with various countries, such as Japan, the United States, and India, for the supply of rice on a government-to-government basis. In order to fulfill these Agreements, the Government had to maintain a sufficient stock of rice, and to prevent it from being exported through private channels which were obviously more attractive. In spite of the monopoly, the Government still found it very difficult to procure rice due to price speculation practiced by the rice millers and merchants who tried in every way to withhold paddy and rice from the market. In February 1952, the Government was forced to prohibit the export of rice by private traders. This prohibition, however, lasted only seven days and the so-called Inducement Scheme was then employed. By this Scheme, private traders who could sell rice to the Rice Office would be permitted to export rice according to the ratio determined by the Ministry of Economic Affairs. At the beginning period, the ratio was 2 to 1.* Later the ratios were changed to 3.5 to 1 and 4.5 to 1 respectively. The Inducement Scheme was abolished by the end of 1954, but private merchants who already had export quotas under this Scheme, were allowed to

*A trader who sold two tons of rice to the Rice Office at the Government purchasing rate, could have an export quota of one ton.

continue the shipping of rice until the end of 1955. Table 2 (3) shows the standard export prices of rice as fixed by the Ministry of Economic Affairs on January 1, 1953.

TABLE 2 (3)

Standard Export Prices of Rice Fixed by the Ministry of
Economic Affairs on January 1, 1953. (per metric ton)

Grade of Rice*	White Rice U. S. Sterling		Glutinous Rice U. S. Sterling	
Rice 100% first class	173.60	62.00		
Rice 100% second class	172.60	61.10		
Rice 100% third class	170.80	61.00		
Rice 5%	154.70	55.05		
Rice 10%	150.50	53.15	150.50	53.15
Rice 15%	146.30	52.05	146.30	52.05
Rice 20%	142.10	50.15	142.10	50.15
Rice 25%	138.90	49.12 ⁺	138.90	49.12 ⁺ .02
Rice 35%	135.80	48.10		
Bangkok White rice Special	131.60	47.00		
Broken rice A1 Super Special	108.92	38.18		
Broken rice A1 Special	105.00	37.10	93.80	33.10
Broken rice A1 Ordinary	100.80	36.00	86.60	32.00
Broken rice C1 Special	79.52	28.08	76.72	27.08
Broken rice C3 Special	57.12	20.08		
Broken rice C Ordinary	55.72	19.18		
Cargo broken rice 100%	148.40	53.00		
Cargo broken rice 50%	134.40	48.00		
Cargo broken rice 10%	131.60	47.00		
Cargo broken rice 15%	126.00	45.00		
Cargo broken rice 20%	123.00	44.00		
Cargo broken rice 25%	120.40	43.00		

Source: Annual Report of the Rice Office. Bangkok, Ministry of Economic Affairs, 1954.

Briefly speaking the price policy aimed to raise the Government revenue on the one hand and to promote the export of rice and stabilize domestic price for consumers' benefit on the other hand.

Later (January 1, 1955), all rice trade was left in private hands until new regulations known as the Premium Program were announced by the Ministry of Economic Affairs on August 15, 1955. Private traders were required to obtain export licenses from the Department of Foreign Trade, and were subject to:

1. the payment of a premium equivalent to an additional export duty.
2. surrender to the Bank of Thailand at the official exchange rate of a certain proportion of the foreign

*Table 2 (3) Note. Official Rate of Exchange in 1953:
50.00 Baht per pound sterling; or
21.59 Baht per U. S. dollar

*"Standard of Rice" Issued by the Ministry of Economic Affairs, Bangkok, Thailand.
pp. 1-12: Rice is divided into many grades;
1. the rice with its kernel of 8/10 or more is graded as "Head Rice" or "Whole Rice" or "White Rice" and is normally called "Rice."
2. rice, with its kernel measuring 5/10 or more but not exceeding the size of Head Rice, is called "Broken Rice."
Both White Rice and Broken Rice are further sub-divided into many grades.

exchange proceeds.

The Premium Program was revised in late 1955. Under the new revision:

1. exporters were permitted to secure the free exchange rate for the entire export value, but they were still subject to the payment of premium.

2. exporters had to supply 5 per cent of their rice exports to the Rice Office for the purpose of internal consumption at a lower price.

These regulations were removed by the middle of 1956 except for the premiums, which are still existing. Following this change in export policy, rice exports in the first half of 1957 increased substantially. In fact there was a scarcity of domestic supplies due to both increasing exports and the bad crops in 1957 and 1958. In August 1957, export quotas on rice were again considered necessary until February 1, 1959.

TABLE 2 (4)

Export Premiums Payable on Certain Description of Rice Since January 1, 1955
(Baht per Metric Ton)

<u>Grade of Rice*</u>	<u>Effective Date</u>								
	Jan 1	1955 Aug 15	Dec 1	1956 Feb 9	Nov 30	1957 Apr 24	Jul 10	1958 Feb 15	Apr 23
White Rice									
100% + 5%	400	1050	935	935	840	840	935	935	935
10-20%	400	950	935	935	840	840	935	935	935
25% up	400	600	935	600	570	570	600	730	730
Glutinous Rice less than 25%	400	950	935	935	750	600	600	600	600
25% up	400	600	935	600	550	600	600	600	600
Loozain Rice less than 25%	400	825	935	700	660	660	750	750	750
25% up	400	600	935	600	570	570	600	730	730
Parboiled Rice	200	400	935	400	420	450	500	650	650
Cargo Broken Rice		400	380	380	420	400	450	450	570
		300							
Rice Flour	200			340	340	340	340	340	340

Source: United Nations: Food and Agricultural Price Policies in Asia and the Far East, Bangkok, Food and Agricultural Organization 1958, p. 103

*See details in "Appendix C"

The premium program has been considered valuable and of great benefit to the Government, since it is regarded as an important source of revenue. The actual premium varies each year according to the world price of rice, the demand for exports and the domestic needs and supply conditions. The private traders pay part of the premiums to the Customs Department at the time of loading while the balance is paid to the Department of Foreign Trade by a promissory note payable within 45 days. The Table 2(5) below indicates that the rice premium is a major source of Government revenue. During the years 1956 - 1958, the percentage of revenue from the rice premium to the total Government revenues* were 15.9%, 18.2% and 14.5% respectively.²⁴

* Government actual revenue in 1956: Baht. 5,193 m.
Government actual revenue in 1957: Baht. 5,119 m.
Government actual revenue in 1958: Baht. 5,616 m.

TABLE 2 (5)

Receipt from Rice Premium, Receipt from Rice Selling,
Money Deposit to the Ministry of Finance
and Budget Estimation, 1946-1958
 (in million of Baht)

Year	Receipt from Rice Premium	Receipt from Rice Sterling*	Money Deposited	Budget Estimated
1946		-3.3	-	-
1947		52.6	32.5	-
1948		273.9	165.9	336.0
1949		478.4	340.4	372.0
1950		375.6	180.0	240.0
1951		584.6	170.0	260.0
1952		844.0	365.0	322.0
1953		1,282.3	807.0	695.0
1954		723.5	635.5	719.2
1955	346.9	421.7	346.9	438.0
1956	811.2		811.2	838.3
1957	933.6		933.6	837.3
1958	815.3		815.3	826.0

Source: Unpublished Statements of the Rice Office, Finance
Division, and Foreign Trade Department. Ministry of Economic
 Affairs.

*No data on receipts from rice selling available
 after 1955 due to the abolition of rice monopoly by the
 Government in that year.

Until 1961 private traders have had to pay premiums on rice export to the Government, though all other regulations have been abolished. The rate of premium for "White Rice" is 400 Baht and for "Broken Rice" 200 Baht per metric ton. The payment procedure was not revised until the end of 1959. Since then the whole amount of the rice premium must be paid at the Department of Foreign Trade, Ministry of Economic Affairs by either of the following instruments:²⁵

1. commercial bank promissory note payable within 45 days from the date of issuance; or,
2. certified check or cashier's order check payable to account payee only.

The Government desired to make the procedure as satisfactory as possible to the private traders so that they would not have to pay separate premiums at separate Government agencies. By this method, the Government also benefits in that it will receive money within 45 days after the export of rice, since most of the exporters pay premiums by promissory note.

Moreover, there are Government policies concerning domestic price and producer price.²⁶ The so-called Domestic Price Policy has been set up to stabilize the domestic price of rice for the well-being of the Thai people. The price is stabilized by fixing the export price, the use of multiple exchange rates, the export premiums, and even the export

quotas and the selling of rice at moderate price by the Government. As to the Producer Price Policy, in April 1955 the Public Warehouse Organization was established for the following purposes:

1. to maintain the price level of paddy and other products for the benefit of the producers.
2. to promote sales within and outside the country.
3. to stabilize the cost of living.
4. to promote business conducted by the Thai people.

The Organization owns a number of storage buildings in Bangkok and upcountry with a total storage capacity of approximately 20,000 tons. Some of the stored rice is sold to private exporters, while another part is exported by the Organization itself. Only a small portion is subject to sale to domestic consumers. Though the Public Warehouse Organization has authority to support the price of rice by means of open-market operations; this function is limited by a shortage of funds.

TABLE 2 (6)

Method of Implementation of Rice Price Policy of Thailand

Administra- tive Agency	Official Producer's Price	Consumer's Price	Procure- ment of Domestic Supplies	Regula- tion of Foreign Trade	Distri- bution
Ministry of Economic Affairs	Free	Free	Public Ware- house Organ- ization	Ex/Imp. Export License and Premium	Gree

Source: United Nations: Food and Agriculture Price Policy in Asia and the Far East. Bangkok, Food and Agricultural Organization, 1958.

The Government has also developed the cooperative program in order to help the rice producer. The Cooperative Society Act enacted in 1930 has been amended and broadened by the later Acts of 1933 and 1947. Though the number of cooperative societies involved in rice production and rice trade have been increasing year by year, they still are not sufficient to handle a very large share of the trade.

TABLE 2 (7)

Number of Cooperative Societies and Members 1930-1959

Year	Number of Cooperative Societies	Number of Members
1930	128	2,157
1939 ^a	1,797	36,465
1949	7,633	259,029
1959 ^b	10,712	426,968

Source: Central Service of Statistics: Statistical Year Book, No. 20 (1937-1938), No. 21 (1939-1940), Bangkok, 1959. p. 469 and p. 495 respectively

Other agricultural support measures provided by the Government which contribute a great deal of benefit to the rice producers are the irrigation program, application of fertilizers, instruction in better cultivation methods, pest and diseases control, seed selection and some research work.

Roles of Private Traders

The rice trade of Thailand has largely been in the hands of foreigners. As already stated, the rice export trade was monopolized by about seven or eight British firms in the period before World War II. During the years after the war, the Government controlled the entire export of rice.

^aonly Credit, Land-hire Purchase and Credit, and Land Improvement Society are Included.

^bnumber as of the end of March 1959.

However, the private traders have again been allowed freedom in buying and selling rice. Since the rice trade constitutes a major part of the Government's revenue the role of private traders in the export of rice are of great significance to the nation. As a general rule, however, the private traders take the standpoint that profits come first and seldom think of the nation's interest. This rule is the major characteristic of the private merchants dealing in rice in Thailand's internal economy as well. After 1955, when regulations were abolished, the amount of rice exports increased substantially until the scarcity of domestic supplies became apparent in the first half of 1957. The performance of these private traders may cause Thailand to be in a weaker position than its competitors in the world markets. For instance in 1958 (a year of moderate economic setbacks in Asia and the Far East), private traders committed themselves to export a substantial amount of rice, since the world price in that year was high due to insufficient supply, and they hoped to reap an excellent profit. Since rice stocks were low, however, they could not fulfill their agreements to some countries, and other rice-producing countries pushed their way into the market. Part of this loss of markets was inevitable because of the short crop, but the commercial disruption was increased by the speculative greed of the private traders who exported large quantities during the first half of the year and were then unable to fulfill their contracts for the later months.

The attempt to regain this lost market position is obviously difficult. The role of the private traders should be regarded as one of the most important problems the Thai Government has to cope with. Other problems concerning the rice economy will be dealt with in Chapter III.

CHAPTER III

PROBLEMS OF THE RICE ECONOMY OF THAILAND

Methods of Production

The methods of cultivation exercised by rice farmers in Thailand are primitive. They have employed the same methods for centuries, and only a few improvements have been added in recent years. As stated in the preceding chapter, the system of harvesting panicle by panicle with a special small cutting knife is still practiced in many parts of the Southern Region. In the process of rice cultivation, a great deal of labor is required, and the farmers have to depend largely upon animal power, especially cattle and water buffaloes. Only in recent years have machines been employed in a small number of fields regarded as experimental subjects of the Rice Department. The premachine economy of Thailand is quite static as compared with an economy using inanimate energy since the latter seems to offer better chances of reaching greater heights of human achievement than one based on animate energy. In a machine civilization such as the United States, agricultural efficiency is certainly superior to that of Thailand, since surplus over and above the minimum sustenance required to support the population can easily be produced. The capacity to accumulate such a surplus depends upon the amount of free energy available along with

the efficient use made of that available energy. Besides the inefficiency of the primitive procedures of production, an economy that is dependent upon human and animal energy has to produce on the basis of higher cost. Compared to machines, men and animals are costly because the upkeep is high. Any farmer will tell you that cattle and water buffaloes spend more time standing around eating than working. Men also have to be fed, clothed, and sheltered. Machines can get along on cheaper food and require less attention than either men or animals. Aside from the morals involved, the use of human labor is certainly a sign of industrial backwardness.

The cost of production of Thailand's rice is quite high relative to that of the other rice-producing countries due mainly to the primitive method of production. From the annual report on Thailand's rice situation in 1955,* the export price of Thailand's rice was somewhat higher than rice from other countries such as Burma, mainland China, Italy, etc., and this caused the reduction in the volume of Thailand's rice sales. As a general rule, in agriculture nature remains the master and man is only the helper. Agricultural man is dependent upon unpredictable and uncontrollable weather, on soil, and on the biological rhythm and process of plant and animal life. The Thai farmers also depend

* Report prepared by the Research Department, Bank of Thailand

almost entirely upon rainfall and therefore the supply of rice is hard to predict and control. They cannot say definitely how much they will produce, and how good the results of their efforts will be, or when the crop will be ready for the market. In Thailand wherever the annual average rainfall is around 72" per square kilometre, rice can be grown without regard to the type and fertility of soil.²⁷ Thai farmers can grow rice in sandy, loamy, or clayey soil, provided only that water can be retained in the fields long enough to mature the crop.

The method of rice production is therefore one of the important problems of Thailand's economy due to the fact that it is inefficient and costly and too much dependent on the natural environment. This problem must be subject to a very careful and thorough investigation by the Government, since it is regarded as a basic source of difficulties. In addition the Government faces all the ordinary problems of agricultural countries which are in a weaker position due to lack of bargaining power in world markets.

Difficulties in the World Markets

Problems of Agricultural Countries

Thailand, like all agricultural countries, has a weaker position in the world markets in relation to industrialized nations. The weakness of agricultural economies is derived from their dependence on nature and the living forces of the plant and animal world, as already described.

The agriculturists' problem is one of imbalance since they cannot force the supply of products to balance with the demand of the people for those products. It is also a problem of disequilibrium when farmers have to pay inflated prices for what they wish to buy while receiving deflated prices for what they sell. Besides, the per capita income in agricultural countries is relatively low and unstable compared with that of industrialized areas. The per capita GNP of Thailand is only \$98²⁸ while the per capita income of Japan is \$312²⁹ which is the highest in the Far East. This is due to the fact that Japan is an industrialized country. The relationship between supply, demand, and price in an agricultural economy is different from that in an industrialized one. The people are mostly small land owners and small producers. They lack knowledge of market prices and economic conditions. A great number of producers, scattered over wide areas and more or less unknown to one another, sow their crops and then wait for the results. Thus, in agriculture, the crop is made first; it determines the supply and this in turn determines the price in the light of the demand. In industry, on the other hand, a rising demand manifests itself in increasing prices and then a greater output is stimulated. Even if mechanization is introduced, the agricultural countries are still in a weaker position since the farmer has not as full control over the amount of output as has the manufacturer. Weather still plays a

dominant role in the determination of output. It may act directly on growth or indirectly through insect pests, diseases, length of growing season, etc. Moreover, the quality of agricultural products is also beyond the control of the farmers. They cannot determine the exact time of the harvest. Nature must take its course. To a large extent the farmers are helpless before the uncontrollable forces of nature. They are also helpless in the market since they are mostly small producers. As a result, the middlemen get between the farmers and the ultimate consumers in order to grade the crops, and deliver them where needed. Since rice has to go through processing (milling, packing, etc.,) before reaching the ultimate consumers, the middlemen and processors play a dominant role.

In trading with industrial nations, agricultural exporting nations are often at a competitive disadvantage because of the low demand and supply elasticities of their products. Also, most agricultural exporting nations are also capital importing young debtor nations which have a large and continuing need for industrial goods and, therefore, some tendency to overspend their export earnings. A case in point is the trade between Japan and Thailand under the Trade and Payment Agreement between these two countries. Imports from Japan were non-seasonal and consisted mostly of luxury products while exports from Thailand were concentrated in the early part of the year right after the rice harvesting season. An open-account system as worked out in the Thailand-

Japan trade was equivalent to a granting of large amounts of credit to Japan for our agricultural exports in the early part of the year, with payment made gradually by Japan in the form of manufactured goods which became large in volume toward the end of the year. Table 3 (1) shows the trade balance between Thailand and Japan with the accumulated debit balance on Thailand's side.

TABLE 3 (1)

Thailand: Trade Balance with Japan 1950-1955

(in thousands of U. S. Dollars)

Year	Exports	Imports	Balance
1950	39,389	38,929	+460
1951	43,331	44,372	-1,041
1952	34,861	41,716	-6,855
1953	62,581	53,663	+8,918
1954	66,301	68,055	-1,754
1955	61,024	66,322	-5,298

Source: Bank of Thailand: Economic and Financial Reports for the Year 1955. Bangkok, 1955. p. 17.

For primary producing countries, exports grow slowly when world trade is expanding but they are subject to sharp decline as world trade declines. This is due to the

following facts:³⁰

a. The sharp contrast between the growth in world demand for primary products and manufacturing products mentioned above.

b. The lack of capacity to store inventory to meet peak demand.

c. Synthetic substitutes such as synthetic rubber.

d. The rather rigid cost and the relatively inelastic supply of the primary products themselves.

e. The ECAFE countries still carried on trade at prewar terms of exchange. Their postwar devaluations mostly followed the changes in the value of the pound sterling rather than their own needs arising from the specific problems affecting their foreign trade. (Wartime inflation raised cost of production in these countries more sharply than in the United Kingdom).

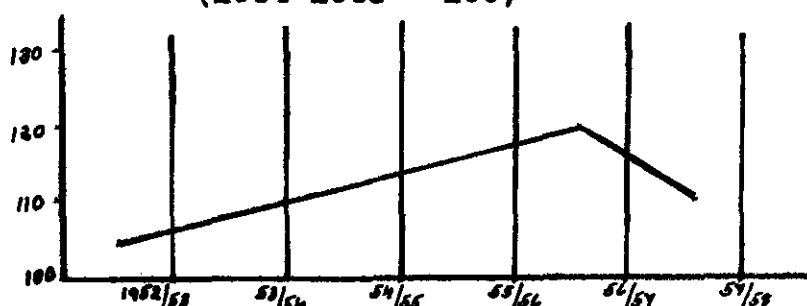
The economic survey of Asia and the Far East made in 1958 by the Economic Commission for Asia and the Far East (ECAFE) of the United Nations, reported the agricultural condition of Asia to be weak and the economic structure shaky. Thailand, being included in the ECAFE region, could not avoid this situation. In 1957-1958, the output of Thailand was reduced considerably in terms of aggregate agricultural output with the decline being 15 per cent ³¹ while the rice crop as a whole was 7.6 per cent short of the previous

year's record.³² Charts 3 (1) and (2) indicate the decline in agricultural production of Thailand and of the ECAFE region (excluding mainland China).

CHART 3 (1)

ECAFE Countries: Agricultural Production Index

(1934-1938 = 100)

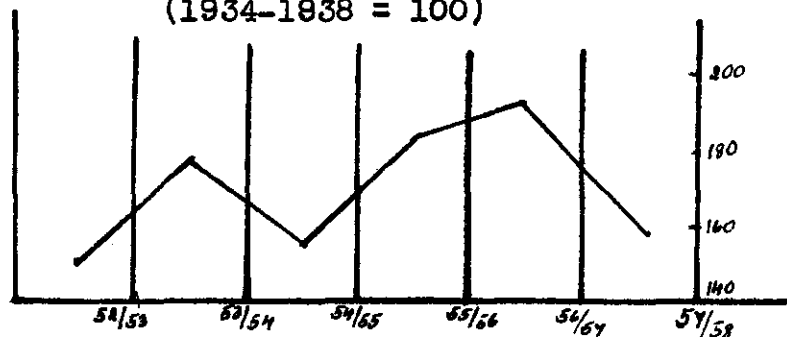


Source: United Nations: Economic Survey of Asia and the Far East 1958. Bangkok, United Nations Publication, 1959. p. 9

CHART 3 (2)

Thailand: Agricultural Production Index

(1934-1938 = 100)



Source: United Nations: Economic Survey of Asia and the Far East 1958. Bangkok, United Nations Publication, 1959. p. 9

The decline in production, therefore, resulted in the reduction of the volume of exports which in turn caused the export earnings of Thailand to decline. The following Table 3 (2) and (3) confirms this fact.

TABLE 3 (2)

<u>ECAFE Countries: Change in Export Earnings*</u>				
	1957 (2nd half)	1958 (1st half)	Total	Per Cent Change in Terms of Annual Rates (July 57-June 58)
Export to:				
U. S.	+27	-49	-22	-2
W. Europe	+20	-109	-89	-5
Japan	-149	-84	-233	-36
Each Other and Rest of the World	+93	-177	-84	-3
	-99	-419	-428	-7

Source: United Nations: Economic Survey of Asia and the Far East 1958. Bangkok, United Nations Publication, 1959. p. 20.

*excluding mainland China.

TABLE 3 (3)

ECAFE Region: Production, Gross Exports, Price in 1958

(figure in thousands of tons)

<u>Rice</u> <u>Year</u>	<u>Production</u>	<u>Percentage change</u>	<u>Gross</u> <u>Export</u>	<u>Percent-</u> <u>age Change</u>
1958	76,200	-7.6	2,546	-22.4

Jan. - Sept.

<u>Price</u> <u>(8)</u>	<u>Percentage change</u>
51.6	+8.4

Source: United Nations: Economic Survey of Asia and the Far East 1958. Bangkok, United Nations Publication, 1959. p. 23.

Export Policy

Aside from the ordinary problems of agricultural countries, Government may also contribute to the difficulties. The export policy of the Government should be suitable for the circumstances. From 1950-1955, Thailand's exports were subject to complete control by the Government and trade was on a government-to-government basis. This procedure enabled Thailand to maintain high bargaining power, and tended to stabilize trade because the Government was usually in a good position to fulfill and renew the contracts. At the same time, when rice exports are under Government control, the private trader is not satisfied since he feels that he will not get as much as if he deals directly with the export customers. Therefore, a black market was created in rice and

considerable export smuggling occurred. Controls on rice exports were reduced gradually during the 1950's until freedom in the rice trade was again quite complete by 1955. However, this also created new problems. The private trader not considers his sole benefit but also does not think of the nation's interest. He sometimes ships lower grade rice than stated in his sale contracts, he disregards promises to sell to one customer if he can find a new customer willing to give a higher price. His actions harm Thai prestige in world markets and threaten the loss of customers. Therefore, the Government is faced with a dilemma; the control of exports with policing and black market problems versus the free flow of exports and the consequences of private irresponsibilities, and this dilemma sums up one of the important problems of Thailand's rice economy.

Competitors

Another problem is the competition, which comes from three main groups: Southeast Asian countries such as Burma, Cambodia, and South Vietnam; mainland China; and countries in the Western hemisphere, namely the United States, and Italy.

Burma is one of the most important rice exporters. Its rice production and export are at the same level as those of Thailand in both quantity and quality. In recent years, for various reasons, the rice production of Burma has increased more rapidly than that of Thailand. Even in the bad harvest in 1958, the aggregate agricultural output of Burma declined only

10 per cent compared to the decline of 15 per cent in Thailand's output.³³ (Burma is considered the most important competitor of Thailand since the two countries share the same markets, namely India, Indonesia, Ceylon, Malaya, Singapore, and Pakistan.) At the present time, the Burmese Government is making concentrated efforts toward further increases in production and quality of exports, and has also negotiated government-to-government contracts in order to insure a continually expanding market.³⁴

TABLE 3 (4)

Acreage and Production in Burma, 1959

Crop	Acreage (1,000 Acres)	Production (1,000 Metric Tons)
Rice, milled	10,160	5,684
Sesamum	1,419	56
Pulses	1,186	224
Peanuts	880	217
Milletts	600	80
Fruit, misc.	425	525
Cotton	328	14
Vegetables	175	900
Corn	175	45
Rubber	119	18
Sugar	90	189
Bananas	55	115
Wheat	46	12
White Potatoes	45	34

Source: Foreign Agricultural Service, U. S. Department of Agriculture: Notes on the Agricultural Economics of the Far East vol. III - Southeast Asia. Washington, Government Printing Office, 1960. p. 5.

Cambodia produces sizable surpluses of both food-stuffs and agricultural raw materials. Its most important export is rice which accounted for \$1,910,000 in 1957³⁵ equivalent to 37.2 per cent of total agricultural exports. Cambodia's rice is generally of a lower quality than the rice of Thailand, but because it also sells at a much lower price, Cambodia is regarded as an important competitor of Thailand, particularly in recent years. After 1958, Thailand nearly lost its position as a supplier of rice to Hong Kong and Singapore which have been important customers for many years.

TABLE 3 (5)

Acreage and Production in Cambodia, 1959

Crop	Acreage (1,000 Acres)	Production (1,000 Metric Tons)
Rice	2,794	930
Corn	254	140
Rubber	84	31
Pulses	254	26
Sugar	--	27
Soy Beans	89	23
Tobacco	43	7
Peanuts	13	3
Sesame	20	3
Kapok	13	4
Spices	--	1

Source: Foreign Agricultural Service, United States Department of Agriculture: Notes on the Agricultural Economics of the Far East vol. III - Southeast Asia. Washington, Government Printing Office, 1960. p. 10.

Although South Viet Nam is a small country, its rice production in 1959 was 2,100,000 metric tons and is regarded as the most important export. Therefore, it, too, is one of Thailand's competitors in world market.

One of the most important competitors of Thailand in recent years has been mainland China.³⁶ According to official estimates for 1958, food crop production in this country was doubled over the amount produced in 1957. The production of paddy was only 86.7 million tons in 1957 while it was 150 million tons in 1958, an increase of 73 per cent. In 1958, the rice production of Thailand and Burma declined considerably. Rice exports from mainland China, however, greatly increased due to the continuing strength of import demand for rice. Its rice exports may reach 900,000 tons which makes it the third largest rice exporter in the world. However, in 1958, mainland China became the largest supplier of rice to Ceylon and a major supplier to Hong Kong, Indonesia, and Japan. These countries have been important markets for Thailand's rice production. The rice exports from mainland China, therefore, have a great influence in the regional and international markets for rice.

TABLE 3 (6)

ECAFE Countries: External Trade in Rice

1954-1956 Average, 1957 and 1958

(thousand tons)

	Average 1954-1956	1957	<u>Corresponding</u> 1957 1958		<u>period</u> Months covered from January
Rice: exports from					
Burma	1,655	1,755	1,691	1,362	10
Thailand	1,168	1,575	1,575	1,128	12
Cambodia	107	194	159	170	8
Viet Nam (so.)	77	190	178	131	11
China: Taiwan	105	122	122	196	12
Mainland:					
excl. USSR	381	280	--	--	
To USSR	376 ^a	181	--	--	
Iran	40	30	--	--	
imports to					
Ceylon	426	523	493	423	11
Fed. of Malaya & Singapore					
Gross imp.	484	527	454	522	10
Net "	428	411	362	365	10
Hong Kong	217	312	312	300	12
India	428	748	748	400	12
Indonesia	383	563	502	600	11
Japan	1,146	347	347	505	12
Korea (So.)	44	211	211	--	12
Pakistan ^b	26	426	406	328	11.5
Philippines	50	120	49	136	8

Source: United Nations: Economic Survey of Asia and Far East 1958. Bangkok, United Nations Publication, 1959. p. 28.

The United States and Italy are also considered competitors of Thailand in the European market but they are not of substantial importance since Thailand trades mostly with its neighboring countries. The United States' milled rice exports increased from 11.8 million bags in fiscal 1958 to 14 million in 1959,³⁷ an increase of 18.6 per cent, making it third among the largest exporters in the world. Moreover, its exports in 1960 were expected to be increased further. The rice surplus of the United States which has been sold under Title I of Public Law 480 occasionally creates a profound problem for Thailand and other rice-producing nations. In early May 1960, President Eisenhower signed the so-called "Food for Peace" agreement with India to supply 587 million bushels or about 16 million tons of wheat and 22 million bags or about 1 million tons of rice over a period of 4 years starting in July 1960. This disposal of one million tons of surplus rice to India will upset the market for all rice-producing countries, including Thailand. Thailand has no objection to this transaction with India, provided that such transactions will not harm the interests of other countries

Page 97 { a 1955-1956 average
b Net export for 1954-55 are respectively 139 and 224; gross import for 1957 was 441.

and disrupt the normal pattern of international trade. Thailand had been negotiating the sale of 100,000 to 200,000 tons of rice to India, but this negotiation was later reported to have come to a standstill. Therefore, the Government fears the United States-Indian transaction may destroy its chance of making such a sale to India. Although India has expressed assurance that its rice imports through normal commercial channels will be about 400,000 tons per year, it is still possible that there will be less chance to sell to India since Thailand has not sold a substantial amount of rice to India over the past five years. The difficulty caused by this agreement could have been eliminated if Thailand had been consulted before the agreement was signed in Washington. The Thai Government was first informed of the grant by the American Embassy in Bangkok on April 19 and a reply from the Ministry of Foreign Affairs was made on April 29, expressing grave concern over such transactions. However, no reply was made to the Thai memorandum and a few days later the agreement was signed.³⁸ As a result of this case, it is apparent that the FAO "Principles of Surplus Disposal and Guiding Lines,"* which were formally accepted by thirty-seven governments, including Thailand and the United States, are inadequate, since no intergovernmental consultation is required. This seems to be the time for various nations to consider the drawing up of an additional agreement which will emphasize the need for intergovernmental consultation as a

* See Appendix B.⁴⁰

regular procedure. Such consultation should be on a bilateral basis between countries exporting rice surpluses and interested third party countries before arrangements are concluded with recipient countries.

Rice-importing Countries

The difficulty in securing markets for the rice exports of Thailand also stem from the purchasing policies of rice-importing countries. According to the reports of ECAFE in the Economic Survey of Asia and the Far East in 1958, the demand for rice continues to be very strong. As previously noted, in 1958, rice exports of Thailand declined substantially in quantity, as the result of a reduced crop in 1957-58 and of the near depletion of export stocks. Some importing countries namely, Hong Kong, Singapore, and the Federated States of Malay have shifted their purchases of rice to other sources of supply, especially mainland China and Cambodia. This shift posed a difficult problem for the Thai Government since Hong Kong, Singapore, and Malaya have been the most important markets of Thai rice for many years. The rice production of mainland China and Cambodia, however, is priced much lower than that of Thailand, and once they got into the market, it has been very difficult for Thailand to regain its former position in these markets.

There are some rice-importing countries, notably, Japan and South Korea, which have tried to increase their rice production in order to be self-sufficient. Japan has

annually imported a substantial amount of rice from Thailand for centuries; but Thai rice exports to Japan have declined in recent years, not only because Japan has succeeded in expanding its rice production, but also because the Japanese have attempted to substitute other less expensive food grains (wheat, millet) for rice in the national diet. In addition, Japan has shifted much of its purchases of rice to countries other than Thailand. South Korea has become almost completely self-sufficient in rice production at present. It did not have to buy rice from outsiders at all in 1958, while last year the nation as a whole imported 211,000 tons of rice.⁴¹ The rice production of these rice-importing countries increased rapidly largely because of FAO aid. The FAO's International Rice Commission has helped to raise the efficiency of every rice producing country in Asia and the Far East irrespective of the country's trade position. Thus the work of the FAO may drastically affect both the volume and the direction of international trade in rice.

For the past few years, the IRC has worked in most of its member countries* and contributed to significant increases in their rice production. Further, six conferences have been held since 1949:⁴² in various countries

1. Bangkok, Thailand, March, 1949

* Member countries of the IRC:

Pakistan	Burma	Indonesia	Paraguay	Australia	India
Philippines	Ceylon	Italy	Portugal	Cambodia	Iran
land	Dominican Republic	Korea	United Kingdom	Cuba	Japan
Laos	United States of America	Egypt	Mexico	Ecuador	Thailand
France	The Netherlands				

2. Rangoon, Burma, February, 1950
3. Bandung, Indonesia, May, 1952
4. Tokyo, Japan, October, 1954
5. Calcutta, India, November, 1956
6. Tokyo, Japan, October, 1958

The first five conferences concentrated on farm management in rice-producing areas. In 1958, an additional working party was established to investigate a report on the topics of rice marketing, processing and warehousing.

The FAO of the United Nations itself renders various aids to rice-producing countries. It maintains a research department to deal with rice breeding, selecting seeds, fertilizers, and prevention of rice pests and diseases. It attempts to broaden the know-how of the farmers through Farmers' Schools, the first of which have been founded in China. The technique of producing rice has been improved in almost every country, notably in Japan, where traders and other new machines have been introduced.

Aside from the FAO's International Rice Commission, another institute with the same idea was set up in the Philippines on April 14, 1960, and is known as the International Rice Research Institute⁴³ (IRRI). It was established principally through the support of the Ford and the Rockefeller Foundations of the United States in cooperation with the Government of the Philippines. This Institute aims at becoming the world's foremost research center on rice, the most

authoritative source of important information on the crop, and a place where scientists may receive superior training in all aspects of rice research. The recent grant from the Ford Foundation has permitted the attraction of a truly superior scientific staff.

However, the increasing production capacity of importing countries, the changes in food habits, and the changes in purchasing policies are beyond the control of the Thai Government. Thailand must attempt to produce at a lower cost in order to compete in world markets.

Price Fluctuation

As a primary producing country, one of Thailand's major problems is the wide fluctuation in the price of its principal exports. The price of primary commodities tends to fluctuate very widely due to the uncertainty of supply and inelasticity of demand. During the third quarter of 1957 and all of 1958, the worldwide recession in industrial countries (originating from the United States) caused the price of primary commodities in world markets to decline, since the industrial countries notable Western Europe, are the largest market for primary products. The re-entry of mainland China in the world rice markets is another factor which caused the price to decline since its rice exports were considerable and were sold at lower prices. As to Thailand's rice price, the Office of the National Economic Council reported in 1953 that between 1948 and 1954 the wholesale price of rice in Bangkok

declined around 12 per cent. Table 3(7) shows the wholesale and retail prices of rice in Bangkok during 1948-1957.

TABLE 3 (7)

Wholesale and Retail Prices of Rice in Bangkok, 1948-1957

Year	Wholesale Baht/60 kg.	Retail Baht/kg.	Wholesale	Retail
1948	86.1	1.24	100	100
1949	81.0	1.20	94	97
1950	79.1	1.20	92	97
1951	78.9	1.32	92	107
1952	84.0	1.60	98	129
1953	77.0	1.63	89	132
1954	75.9	1.53	88	123
1955	91.3	1.57	106	127
1956	90.1	1.62	105	131
1957	87.7	1.58	102	127

Source: United Nations: Food and Agricultural Price Policies in Asia and the Far East. Bangkok, Food and Agricultural Organization, 1958. p. 104.

From Table 3 (7) above, the price of rice shows a somewhat increasing trend during 1954-1957. To show how market conditions change, after the bad crop year in 1958, Thailand and Burma experienced difficulties in selling their rice

exports in the first half of 1959 and they had to reduce their prices in the second half of that year, in order to sell their stocks.⁴⁴ However, the decline in the price of rice was not expected to result in serious harm to the economies of the rice-exporting countries since the price fluctuation was estimated to be only 5 per cent.⁴⁵

Demand and Supply

Actually the development of demand for goods depends on population growth and rising incomes. The demand for primary commodities, notably rice, however, tends to rise less rapidly than income (low income elasticity of demand.) The demand for food also changes as new kinds of food items are developed. The less rapid growth of consumption along with increasing national self-sufficiency in food items has caused a stagnation in the expansion of such commodities as rice and other food grains. The world price of rice rose between 1928 and 1955 due to the inflexible supply and the rise of demand. After World War II, the ECAFE countries slowly restored their production capacity. Since they depend heavily upon weather conditions, the rapid growth of population and the expansion of their own industries can impede the growth of export supplies of these countries. The exports of primary products from the ECAFE region, therefore, have fallen far behind the industrial countries and even the rest of the primary producing countries of the world.

In the early postwar period, the demand for rice was substantial, while the supply of rice was greatly restricted. Therefore, the rice-importing countries were forced to pay a high price. The price continued to move upward due to the Korean War in 1950, but by the end of 1958, when the supply of the rice-exporting countries was improved, the situation reversed. This was due to the development of production in importing countries and partly to the bilateral agreements with the United States to supply rice surpluses to those countries.

Short term fluctuations in demand and supplies of rice, nevertheless, are due largely to the climatic factors. However, the overall short term instability in the primary markets (such as rice) should be caused by:

1. Cyclical fluctuations in the income and output of industrial countries.
2. The growth of self-sufficiency and the development of synthetic substitutes in the importing countries.
3. The changes in supplies of primary products due to floods, the inexperience of producers, and climatic factors, etc.

However, the world demand for rice continues to be strong due to the continuing growth of population in the rice-consuming nations. Individual governments, including Thailand, cannot appreciably affect world demand, and must of necessity restrict their control efforts to the area of

domestic supply. However, some positive measures can be taken and recommendations for the development and maintenance of international markets for Thailand's rice exports will be discussed in the following chapter.

CHAPTER IV

THE DEVELOPMENT AND MAINTENANCE OF INTERNATIONAL MARKETS FOR RICE EXPORTS

In order to eliminate the difficulties stated in the preceding chapter, and to maintain the international markets for its rice exports, participation of the Thai Government is required. Some difficulties restricting the markets for Thai rice such as the competitive factor, the change in purchasing policy of the customers, and the change in food habits of the world population, are beyond the control of the Government. What the Government can do is to attempt to solve the internal problems. Such a policy can be divided into two categories: policy for production, and policy concerning storage, processing and marketing procedures.

Production Policy

Thai rice has enjoyed a good reputation for quality throughout the world and its price is relatively high compared with the price of rice from other exporting countries. In order to obtain the best quality rice, the farmers must constantly attend to the careful selection and preservation of good quality seed and its cultivation. General neglect at the end of World War I with regard to this point and the unscrupulous mixing of different varieties of rice to meet the rising demand regardless of quality,

lowered the prestige of Thai rice so noticeably that the Government had to take action. Through its selection work and the purification of seeds, some standard varieties have lately been established. The so-called "Pin Kaeow" (regarded as the most desirable in quality and grain type) won the first prize at the World Seed and Grain Exhibition held in Regina, Canada in 1933.⁴⁶ In that Exhibition, Thai rice also won ten other honors out of the total of twenty, including the second and third honors. However, the distribution of good seeds throughout the country met with little success due to a lack of trained personnel to follow through with a well planned seed multiplication program. During World War II, war conditions coupled with a big flood in 1942 destroyed a large percentage of the rice crop in the Central Plain and total rice production and exports were drastically curtailed. The postwar boom greatly increased production and the farmers enjoyed a few years of prosperity. However, while at the present time the rice production of Thailand has recovered about 26 per cent from the bad crop year of 1957/1958,⁴⁷ the rice price in the world market has dropped, so the Thai farmers are again in a potential distress situation. With the increase in population (about 2 per cent annually)⁴⁸ and a keener competition in world rice trade in the future, Thailand is gravely concerned with its rice production. It has been estimated* that at the present rate of production (7,100,000 metric tons in 1959),⁴⁹ Thai-

*by the Ministry of Economic Affairs

land will not have enough rice for export in about thirty years if the rate of increase in population remains unchanged. The following Table 4 (1) shows the relative basis for determining the amount of surplus rice for exportation.

TABLE 4 (1)

Elements of Calculation for Rice Surplus

Total rice production		100%
Internal consumption	52%	
Waste	5%	
Seeds	6%	
Animal feeding and industries	1%	
Waste in the stock	<u>2%</u>	<u>66%</u>
Surplus for export		<u>34%</u>

Source: Thailand Commercial Intelligence Department, Ministry of Economic Affairs: Agricultural Products of Thailand. Bangkok, Commercial New Press, 1957. p. 8

The Thai Government started an intensive scientific program to improve rice cultivation in 1950, with some technical help from the United States and the FAO. The best way to do this is to increase the production per unit

of land because the present average of 1.3 tons per hestare⁵⁰ is still rather low. Under this policy, more food and a better chance at competition in the world market will be realized. There will also be the added advantage of freeing unsuitable rice land for growing other crops or for other purposes. There are several ways to increase production per unit area of land; irrigation, breeding, seed multiplication, fertilizer application, mechanization, and disease and pest control. At the same time, the Government also hopes to improve the methods of handling, transporting and storage in order to reduce losses at these points. Moreover, ways of increasing income by second cropping, other crops, poultry, animal and fish raising, or even cottage industries such as wicker work, pottery, etc. are also being considered to help improve the general condition of the Thai rice farmers. In 1954, a new Department of Rice was established under the Ministry of Agriculture with the sole purpose of increasing rice production. This new Department has technical responsibility for the various phases of rice production such as breeding, fertilization, mechanization, pest control and the like. The Co-operative Movement and Land Reform laws have been revised in favor of the rice farmers. All these programs clearly indicate the intent of the Government to improve Thailand's agriculture, especially rice production, which is vitally important to the nation's trading position.

Technical Aspects⁵¹

Irrigation and drainage is one of the various important factors influencing rice production. As shown above, timely and adequate water are important determinants of rice production, which requires more water than other crops as shown by Table 4 (2).

TABLE 4 (2)

Depth of Irrigation Application per Season (in Addition to Precipitation)

	inch	1 sq. kilometre
Potatoes	12	- 18
Rice	60	- 96
Cotton	15	- 25
Beans	6	- 10
etc.		

Source: United Nations: Formulation and Economic Appraisal of Development Projects. Vol. II. Pakistan, FAO of United Nations and IBRD, United Nations, 1950. p. 493.

The Thai Government has spent a large sum of money in developing irrigation systems for the country. The responsibility for this task rests with the Irrigation Department, Ministry of Agriculture. The purpose of the irrigation system is to redistribute the natural flow

of water more effectively. In fact, rainfall brought by the monsoon is more than sufficient for rice cultivation, but offers the problems of irregularity and high seasonal concentration (rainy season - May to October). Thus the difficulty of providing a constant and unfailing supply of water for irrigation has been clearly shown. In Thailand rice cultivation depends mostly upon rain and river water. In order to obtain a good yield, the quantity and time of arrival of water at the field must be timed to the various stages of the plant's growth. Such conditions cannot always be obtained naturally, therefore some percentage of crop is damaged every year. According to the records compiled by the Ministry of Agriculture, there are more drought years than flood years, (drought years accounted for 48 per cent of the total 124 years since the records have been kept). In the years of severe drought, damage to the crop is quite high. Without irrigation, the Central Plain, or the so-called "rice bowl" of Thailand, could not produce the maximum yield it is now capable of producing for the benefit of the rice eating people of the world. The first irrigation work in the Central Plain was the building of a barrage* in 1947 (a diversion dam with multiple openings) to divert the river at Chinat. Drainage canals were also excavated. This irrigation system provides the water needed for ploughing and sowing at the beginning of the season, so

*This project also provides protection from the ten years frequency floods.

that the crop can grow up to withstand the heavy rain of June. As the amount of rice land increases each year, this irrigation project could not provide a sufficient supply of water, especially at the beginning of the season. A new irrigation project, known as the Chao Phraya River Dam Project⁵² or Chinat Project, was therefore urgently needed to bring the fertile paddy fields into intensive production. In 1951, the Royal Irrigation Department began work on this needed project with the assistance of the FAO and a term loan of \$18,000,000 from the World Bank for this project. The Chao Phraya Project was completed in 1960 as expected. It has been estimated that the Chao Phraya Dam will add about 2,300,000 rai of rice land, and provide an additional 500,000 tons of surplus rice for export. Besides the Central Plain, water control activities have been extended to the north and northeastern sections of the country. There, other irrigation projects are under way, notably the Yanhee Project which will contribute additional rice production of over 50,000 tons a year; the Kam-Paeng-Petch Project which will provide 450,000 tons; and the Petchburi Project which will increase rice land by 135,000 rai. In Southern Thailand, irrigation is less necessary than in other parts due to the regularity of rainfall. If all irrigation projects are complete the production capacity of Thailand will be greatly increased to meet with the continuing growth of population or the demand for Thai rice

in international markets.

Breeding Program⁵³

Thai farmers have long selected their own rice varieties for quality and yield. Though this was somewhat successful due to their experience, the scientific method of pure line selection is more productive. This scientific method was started on a small scale in 1916 when the Rangsit Rice Experiment Station was founded but the present large scale rice breeding program was begun in 1950 along these three lines:

1. Variety evaluation
2. Individual plant selection
3. Hybridization

Yield trials were first carried out in eight of the nine main experiment stations. The best fifteen or twenty lines will be chosen for further trials in farmers' fields in comparison with local best varieties all over the Kingdom. The top varieties of all these tests for at least three years will be recommended for multiplication. The large scale selection started in 1950 consisted of about 120,000 varieties, of which only a few hundred lines remain after the advance test and yield trial. Several subsequent selections were made in the Northern, Central, and North-eastern Regions to continue the search for better and better varieties.

The hybridization work started in 1952 when the

first batch of FAO Japonica-Indica crosses were grown. Since then several more batches of FAO hybrid seeds have been planted in various parts of Thailand. Three years ago hybridization of local varieties was also begun extensively. In 1956, a new program of seed multiplication of recommended varieties⁵⁴ (there are 11 recommended varieties altogether) was practiced. Under this program, farmers organize a Village Seeds Committee to take care of the allocation of stock seed and multiplication seed of the village. According to the records of the Rice Department, in 1957 there were 24,000 stock seed farmers all over the Kingdom which should be able to provide enough seed for about 20,000,000 rai by 1959.

Improvement of Soil Fertility⁵⁵

Fertilizer is used by a very small percentage of Thai farmers at the present time. However, it is gradually being accepted by the farmers where its application is shown to bring high profits. Whether the fertilizer application will bring good profit or not depends upon the prevailing prices of the fertilizer and the paddy. Problems involved in the use of fertilizer are: inadequate information on the kind and amount of fertilizer to use; lack of widespread demonstration and extension work on fertilizer application; and lack of funds to purchase fertilizer. Better designed and planned experiments on fertilizer application were begun in 1950. The use of certain types of fertilizer showed the greatest improvement in rice yields. Since fertilizer,

applied under proper water control, is an important factor in increasing the yield of rice, the Government should adopt the subsidized fertilizer distribution program in order that the farmers will be able to purchase it. Part of the extension service and the demonstration of fertilizer application is made available by some commercial firms. Mechanization is very significant for the improvement of rice production. For centuries Thai farmers have retained their old way of harvesting their crops with very few changes. Water buffaloes are still the prime power and are indispensable to the rice farmers while wooden ploughs and sickles are standard equipment. During the past twenty years, however, a small cheap gasoline or diesel motor has often been used for some purposes, such as to pump water, and to propel boats, etc. Steam or motor-driven mills exist all over the rice-producing areas of the Kingdom but in the remote localities, the old method of rice milling by pounding in a wooden mortar is still practiced. In recent years the encouragement of the use of tractors proved less successful than it might have because 80 per cent of the rice area is small fields which make the use of tractors impractical. Thus, a large scale mechanization program for Thailand's rice cultivation must be subject to the following considerations:

1. The majority of rice fields are divided into small holding farms, therefore, large scale mechanization is

difficult to apply.

2. The soil is mostly heavy clay which requires special wheel adaptation.

3. The relatively low standard of living and low level of education of the rice farmers will permit only a gradual change toward mechanization.

4. The cost of farm machines is still too high for the average farmer. However, it is hoped that through the co-operative movement, this obstacle may be overcome in the near future.

5. A thorough and scientific study of special modifications of farm machines to suit the local need must be undertaken in order that Thai farmers may purchase efficient and suitable machines at reasonable prices.

6. The knowledge of maintenance and repair on farm machines is badly needed by the farmers before they can handle farm machines efficiently and economically. At present some types of labor-saving machines are invented by the Ministry of Agriculture and are made available for those who can afford to buy them.

(1) Steel-buffalo-ploughing machine invented by the Rice Department, and distributed by the East Asiatic Company at the price of 23,000 and 25,500 baht per set. The price is much lower than a foreign made machine.

(2) Dhebpharit irrigation pump. This

pump is as low-priced as 1,350 baht for a 10" size and 2,500 baht for a 13" size (21.19 baht: U. S. dollar).⁵⁶

Diseases and Pest Control⁵⁷

In Thailand rice pests have always been a big problem, but until recently control was left largely to the farmers themselves. At present time, however, almost 100 per cent of the control work is undertaken by the Government free of charge. Unfortunately, only a very small number of trained men and a very small budget are available, so only a few areas are benefited by it. The problems caused by rice pests are as follows:

1. Farmers' problems. Like farmers elsewhere in the world, Thai farmers are conservative and superstitious. They do not understand the modern means of eliminating diseases and pests and will not accept them. The only way to overcome this attitude is by education. It will require a great deal of time and patience to improve this situation and even with a well-planned program handled by well-trained personnel, little hope of immediate success is expected. Young farmers trained in modern methods and outlook are often driven by social pressure back to the old ways of their parents; and by the time they have their own farms, their former training is completely forgotten.

2. The cost of chemicals and equipment. The rice pests can only be controlled or prevented by means of pesticides and modern equipment. The cost of such imported

products is so high that the rice farmers, who generally lack cash for capital investment, cannot afford to buy. The solution of this problem is to increase the farmers' income and train them to save it. Therefore, farmers will have little opportunity to purchase chemicals and equipment for pest control until general improvement in crop production is well under way.

3. Pest control and equipment designs. The paddy fields in Thailand require unconventional techniques and methods of insecticide application. Since all sprayers and dusters have to be imported from countries where conditions are different, such equipment is not suitable to Thailand's paddy fields. Equipment that is easily portable and gives good performance is required at a price that farmers can afford.

4. Danger in handling pesticides. Pesticides can be given only to farmers who are well informed and trustworthy, since they are generally poisonous to both men and animals. In addition to insect pests on the rice crop, some insects and fungi attack stored rice and paddy where the millers and merchants must deal with them. Since 1951, Thai rice exporters have been requested by all customers to fumigate their shipments against pest and fungi.

Besides the above factors, (irrigation, mechanization, pest control, etc.), the Government should provide incentives in rice cultivation so that rice farmers will

attempt to increase their production of rice. The income from farms must be high enough to stimulate farmers to produce more and to achieve the desired upward trend of rice production. A large tax (duty and premium) imposed on rice exports at the present time is a heavy burden on the farmers since it depresses the internal price. However, this tax cannot be removed for it is regarded as an important source of revenue by the Government, and the determinant of the internal price of rice. The Thai people would suffer from the rise of the internal rice price if the tax were removed. What the Government should do is grant subsidies to the rice farmers to assist them in increasing their productivity. Improvement in the efficiency of land and labor such as the second cropping of rice or the growing of other crops, is also an important way to attain larger income and should be encouraged.* 58

By all these methods, a major increase in rice production can be achieved and Thailand will be able to supply rice to the rice eating population of the world. To the extent that these methods also make the rice yield more certain, they will also bring about a more secure position in world markets, because customers as a general rule, are more willing to purchase from the nation that can supply stable amounts of high quality rice almost all the time.

Marketing Policy

* IREAS: A Public Development Program for Thailand

Since the various regulations practiced by the Government during the postwar years tended to discourage the rice exports which contributed the major Government revenue they were all abolished. The relaxation of governmental controls now allows freer movement in the rice trade. In 1958, Thailand lost some of its important customers to the other rice producing nations, notably mainland China* and Cambodia.

From then on the Thai Government kept the rice situation under close observation in order to deal with the various problems in the best possible ways. The recent reduction of the premium on rice exports has been a most important factor in encouraging the flow of rice into international markets, since private traders are thus enabled to obtain greater profits. It is also regarded as an incentive to the rice farmers to produce more because they now anticipate increasing returns from the rising internal rice price. However, the abolition of premium is not advisable at present due to the facts that it contributes a major revenue to the Government and it is regarded as a determinant of the internal price of rice.

*Mainland China is no longer an important competitor since its rice production declined in 1959. In 1961, mainland China will have to buy almost 700,000 tons of grain from Australia and Burma due to its poor crop as a result of floods, droughts, insects, etc. Moreover, it has to pay a debt to the U. S. S. R. with food and it is also sending rice to Africa for propaganda purposes.⁵⁹

Regularity of rice exportation is the most important factor for the country to remain a trustworthy supplier. The Thai Government realizes this fact, therefore since 1959 the volume of rice being exported has been kept regular throughout the year. According to the records compiled by the Department of Foreign Trade, Ministry of Economic Affairs, the volume of rice exports in the first six months of 1959 was 545,469 tons while that of the following six months was 524,700 tons. Moreover, monthly exports were never less than 70,000 tons. Thus the volume of rice exports in 1959 was quite stable relative to that of 1958, when 700,000 tons were exported in the first six months, 180,000 tons of which were exported in January while only 400,000 tons were exported during the latter period of that year. Nor was there any monthly regularity, for example, in October and November 1958, 28,000 tons and 40,000 tons respectively were exported. The irregularity of exports not only caused the internal price of rice to move upward but also ruined our foreign markets as well. for example, in the first six months of 1958, Thailand sold 86,558 tons of rice to its European customers, but only 29,940 tons were shipped to Europe in the latter part of the year. Since the demand for rice exceeded the supply being exported by Thailand during the second half of 1958, European countries were forced to buy rice from the United States. Since then Thailand has not been able to regain

its position as an important supplier to the European market. A similar incident has taken place in Hong Kong. Since 97,902 tons of rice were exported in the first six months of 1958 while only 74,796 tons were sold in the following six months, rice importers in Hong Kong bought the extra rice needed from countries other than Thailand (mostly from mainland China and Cambodia). The regularity of export policy practiced by the Government in 1959 not only helped to maintain the reduced European and Hong Kong markets, but also stabilized other foreign markets, as well as the domestic price of rice. Throughout the year 1959, there were no complaints that the domestic price of rice was too high and the Government did not have to buy expensive rice for resale to ultimate consumers at a lower price.

Thailand also has a problem concerning the exportation of broken rice. During the first six months of 1959, the broken rice being exported was very much less than in previous years. The Government, therefore, had to reduce the premium on broken rice from the former rate of 420 Baht to 400 Baht per ton.⁶⁰ After that the amount of broken rice being exported was increased substantially.* Another attempt to export broken rice was the mixing of broken rice with the 25% white rice. The mixing ratio was 1:2.** This type of rice was purchased mostly by the Indonesian Government.

*See statistical data in Appendix D.

**One ton of broken rice: 2 tons of 25% white rice.

In 1959, Thailand disposed of 23,000 tons of broken rice by exporting 67,000 tons of this mixture to Indonesia. Therefore, the method is considered as a good one.

In order to improve the competitive position of the country, the Thai Government announced the reduction of rice premiums on June 17, 1959. The following Table 4 (3) shows the revised rates of premium.

TABLE 4 (3)

Export Premiums: Former and Revised Rates

Since June 17, 1959

(Baht per metric ton)

	<u>Grade of Rice</u>	<u>Former Rate</u>	<u>Revised Rate</u>
1	<u>White Rice</u>		
	100% and 5%	935	890
	10%	935	840
	15% - 20%	840	840
	25%	650	650
	35%	600	600
	45%	600	550
	broken rice Al special	730	720
	broken rice	470	450
2	<u>Glutinous Rice</u>		
	less than 25%	480	400
	25% up	450	420
3	<u>Loozain Rice</u>		
	less than 25%	750	700
	25%	650	650
	35%	600	600
	45%	600	450
	45% up	450	420
4	<u>Parboiled Rice</u>		
	less than 25%	650	600
	25% up	400	380
5	<u>Rice Flour</u>	400	380
6	<u>Cargo Broken Rice</u>	120	100

Source: Ministry of Economic Affairs: Report of the Foreign Trade Department 1959. Bangkok, the Division of Export Committee, May 7, 1960.

Though the premium reduction policy does not immediately bring a substantial increase in rice exports, it causes the Hong Kong merchants to import a larger amount of rice from Thailand. Rice exported to Hong Kong in the second half of the year 1959 amounted to 90,011 tons, compared with only 72,582 tons in the first six months of that year. In fact the Government should rely on a moderate policy of exportation, i. e. not export so much that there is a scarcity of rice for domestic consumption. As the productive capacity continues to increase, the surplus rice for export in 1960 is expected to exceed that of 1959. Therefore, the maintenance and development of international markets for rice production is very important to Thailand. Thus, in an attempt to increase exports in 1960, the Government reduced the export premiums again in December, 1959. Unfortunately, data on the latest schedule of premiums is not available.

As a general rule, market research to estimate demand for products, is a wise procedure. This task of the Government has the assistance of the FAO's International Rice Commission (IRC) which has recently set up a working party to deal with the storing, processing and marketing of rice. The group's purpose will be to facilitate expansion of international trade in rice. The United Nations International Co-operation Administration (ICA) also renders indirect assistance through its educational work. Since 1944, 73 persons from Thailand have received training in

agricultural work in the United States with the support of the ICA and FAO and other agencies.⁶¹ A person of higher education can normally do a better job than an uneducated one. Therefore, through such educational assistance programs the Thai people will become more efficient and will be able to serve their own country better than before. Since the markets have been well studied, Thailand should be able to keep its rice production in step with the world demand for rice.

⁶²Moreover, an intra-regional trade in rice should be promoted. In order to attain this objective, an inter-governmental organization on the economic aspects of rice should be established to discuss the world rice situation on a regular basis. A forecast of expected changes in production, consumption, and exports or imports should be made available by this organization in order to contribute as much benefit as possible to all interested countries.

Finding New Markets

It is time for the Thai Government to find new markets in all parts of the world in order to help stabilize the demand. There is little possibility of any increase in rice exports to the European market because the people there do not depend on rice as their basic foodstuff. Only a small amount of rice was exported to European Countries in the first three months of 1960. From data compiled by the Foreign Trade Department,⁶³ the

rice exported to England was 5,610.3 metric tons, to West Germany, 600.1 metric tons, and to The Netherlands 10,776.6 metric tons. Therefore, Europe cannot be regarded as having much potential as a market for the continuing increase of Thailand's rice production. Though Hong Kong, which has been Thailand's greatest buyer of rice has recently increased its demand, its total requirements are not large enough to absorb the increasing supply. According to a thorough investigation of the amount of exports and the countries of destination by the Foreign Trade Department, it is reasonable to expect Africa to become a large new market for Thailand's rice since rice is the staple food there and the population is growing rapidly. In order to achieve this purpose, the Government has established the "Exports Promotion Committee" to study the demand for and supply of rice in various countries to find new markets for Thailand's rice production.

Among the neighboring countries, only Indonesia is an important potential customer since its demand for rice seems to be increasing substantially. Indonesia is the most densely populated area in Southeast Asia and the rate of population increase is very high, even in relation to other countries in this part of the world. As rice is the basic foodstuff, Indonesia has to import a great deal of rice annually. For example, in 1958 the total amount of rice imported amounted to 88,000,000.⁶⁴ As described above, the

exports to Indonesia also enable Thailand to sell much of its broken rice through the so-called "special mix" type being bought by that nation.

TABLE 4 (4)

The Rice Exports of Thailand to Various Countries

1958-1959

(metric tons)

Country of Destination	1958	1959
<u>Asia</u>		
Singapore	223,127.28	219,203.30
Hong Kong	172,844.24	162,593.89
Fed. of Malaya	141,963.24	210,508.7
Indonesia	130,725.80	67,545.50
Philippines	46,989.30	1.40
Pakistan	30,357.54	2.20
Ceylon	202.15	0.30
Okinawa	25,680.00	18,200.00
Sarawak	26,393.60	32,072.60
North Borneo	17,861.60	16,784.92
Dutch New Guinea	7,092.65	6,959.45
Korea	15.30	2.20
Japan	45,220.60	71,382.70
Macao	150.00	150.00
India	1.82	58.65
Taiwan	1.10	4,100.60
	<hr/> 873,803.77	<hr/> 816,000.11

Europe

The Netherlands	42,375.85	29,447.26
Denmark	11,074.47	8,704.28
England	46,432.15	24,261.61
Sweden	0.8	0.5
West Germany	6,090.56	226.6
Belgium	2,250.20	595.05
France	7,430.92	1.3
Switzerland	1.1	5.8
Greece	851.1	337.0
Spain	-	1.3
	<hr/>	<hr/>
	116,507.15	63,980.70

Africa

South Africa	776.0	18,970.44
Congo	-	10.0
Ethiopia	129.91	579.82
Mombasa	7,961.66	6,739.85
Portlious-Moricius	7,214.63	7,819.81
Zanzibar	3,816.5	2,544.68
Tanganyika	270.0	300.02
Egypt	50.0	49.9
Kenya	510.0	1,785.0
Somaliland (France)	1,624.27	1,879.5
Somaliland (Italy)	110.00	2,205.8
Nigeria	-	70.0
Mozambique	85.0	-
Kano	664.0	964.0
Dakar	7,648.19	-
Gambia	-	20.0
Sudan	381.55	1,211.01
Uganda	888.97	659.9
Rhodesia	<u>1,355.0</u>	<u>1,737.98</u>
	33,585.68	47,627.71

Middle East Countries

Persia	24,860.21	41,303.43
Saudi Arabia	31,630.78	61,327.54
Iraq	3,228.86	6,457.66
Eden	23,244.31	25,339.52
Lebanon	<u>252.0</u>	<u>555.71</u>
	83,216.16	134,983.86

Other Countries

New Zealand	206.95	421.34
Russia	-	0.3
Australia	5.5	40.08
Fiji	3,380.53	7,110.5
The United States	12.71	4.12
Argentina	0.2	0.3
West Indies	13,757.78	-
Celebes	<u>144.2</u>	<u>-</u>
	<u>17,507.87</u>	<u>7,576.64</u>
Total	<u>1,123,620.63</u>	<u>1,070,000.02</u>

Source: The division of Export Committee, Ministry of Economic Affairs: Report on the Rice Exports of Thailand to Various Countries. Bangkok, 1959.

From the above table, it can be seen that the trade between Thailand and the African countries is not yet extensive. There is a large gap for Thailand's rice to fill in the African market. Therefore, those countries are expected to be among Thailand's more important customers in the near future.

In conclusion, the development, and maintenance of international markets for Thailand's rice should be aided by:

1. The increasing productive capacity
2. The enforced regularity of rice exportation
3. The study of markets to anticipate demand

CHAPTER V

CONCLUSION

Trend of Rice Exports

The increasing rice production of Thailand since 1958 is due to technical improvements in the methods of production - the irrigation system, the utilization of seed multiplication, the use of fertilizer to improve soil fertility, etc. The latest statistical data compiled by the Rice Department indicated that Thailand's rice production in 1959 was around 7,100,000 metric tons. This was 1,600,000 metric tons above the 1958 level and was equivalent to a 27.9 per cent increase over last year's production.⁶⁵ At the same time, the production area increased about 4,000,000 rai (1 rai = .395 acre) or about 13 per cent.* Thanks to favorable weather and regular rainfall, the production per unit land area increased about 8 kilograms (1 kilogram = 2.2 lbs.) over that of 1958.** In spite of the increasing average yield, however, the figure was still lower than the average yield in the past twenty years. The rice yield per rai was 247 kilograms in 1947, for example. Generally speaking, rice production per unit land area of Thailand is at a very low level compared to that of other rice-producing countries notably, Japan, Egypt, and Spain, etc. which produce about

*1958 production area = 31,900,000 rai)

**In 1958, production per unit land area was 208 kilograms per rai.

545.3, 599.0 and 674.1 kilograms per rai respectively. The rice yield per rai of Thailand exceeds only that of Cambodia, Viet Nam and the Philippines, but both total rice production and the yield per rai have been estimated to be larger year by year. The surplus rice for export has totaled around 1,180,000 metric tons for years but it is expected to reach 1,800,000 tons within the next three to four years.⁶⁶

According to a report by the Bank of Thailand, world rice production in 1958/1959 was 132,000,000 long tons⁶⁷ which was around 8 per cent above the previous year. The increasing rice production is due to the expansion of cultivating areas coupled with a greater yield per unit of land. Since some countries (notably Japan and Pakistan) reduced their imports as a result of increased domestic production, the world trade in rice shrank by 10 per cent. The shrinkage of demand lowered the price of rice in world markets.

TABLE 5 (1)
Monthly Export Price (F. O. B. Bangkok)
 1957-1959
 (Pounds Sterling per Metric Ton)

<u>Month</u>	<u>1957</u>			<u>1958</u>			<u>1959</u>		
	<u>100%</u>	<u>5%</u>	<u>10%</u>	<u>100%</u>	<u>5%</u>	<u>10%</u>	<u>100%</u>	<u>5%</u>	<u>10%</u>
Jan.	49	45-10	44-10	54-10	49-10	48	49	46	45
Feb.	49	45	44	44	53	49	50	57-10	46
Mar.	49	45-10	44-10	56	51-10	50-10	51	48-10	47
Apr.	49	45-10	44-10	56	51-10	50-10	50-10	47-5	46-5
May	48	46	45	56	52	51	52-10	49	47-10
June	49	46	45	56	52	51	52-10	48-10	47
July	51	47-10	46-10	56	52	51	52-10	48-10	47
Aug.	55	51	50	56	52	51	53	48	46
Sept.	59	54	52	56	52	51	53	48	46
Oct.	56	51-10	49-10	56	52	51	51-10	46-10	44-10
Nov.	56	51	49	56	52	51	51	46	44
Dec.	55	51	49	55	52	50	51	45-10	43-10

Source: Economic Council of Thailand: Monthly Export Price. Bangkok, 1960.

The price of rice in 1960 has been estimated to be even lower despite the increasing world population and the resultant rise in demand for rice, because most of the rice-importing countries are now able to produce more rice to meet their own needs.

However, the prospect for international trade in Thailand's rice is quite promising. Hong Kong, which is one of Thailand's top buyers, has shown a willingness to purchase more Thai products especially rice. Many Hong Kong officials and businessmen have expressed the hope that trade with Thailand could be increased.⁶⁹ Moreover the per capita consumption of rice tends to increase each year, so that it is at present around 15 per cent above the 1947-1952 level. Although most importing countries are able to produce more rice, the importation of rice is still important. For example, the rice production of African countries increased about 100% over the past twenty years but they have to import rice from other countries due to the increasing population and the increasing per capita consumption.

TABLE 5 (2)

Average Production, Consumption and Per Capita Consumption
of Rice for 1934-1938, 1947-1952 and 1957-1958, Various Geographic Areas

	Production			Consumption		Per Capita Consumption			
	1934-8,	1947-52,	1957-8	1934-8,	1947-52,	1957-8	1934-8,	1947-52,	1957-8
<u>Asia</u>	(billion metric tons)					(kilograms)*			
Importing Countries ¹ -	50.8	62.8	60.3	53.7	66.4	88	80	87	
Producing Countries ² -	11.3	13.1		8.4	9.6		116	117	
Mainland China -	39.0	56.6	40.9	39.1	56.3	87	70	87	
Total	101.1	132.5	101.2	101.1	132.3	88	78	89	
<u>S. America</u>	3.1	4.0	1.6	3.2	4.2	13	20	22	
<u>Africa</u>	3.0	3.6	1.7	2.9	3.7	10	11	12	
<u>N. America</u>	1.3	1.5	0.6	0.8	1.1	4.3	5	6	
<u>Europe³</u>	0.9	1.1	1.9	1.0	1.2	4.9	3	3	
World Total	109.4	142.7	107.0	109.1	142.5	55	47	54	

Source: Bank of Thailand: Report on World Rice Situation 1958/1959. Bangkok, Research Department of the Bank of Thailand, 1960. p. 4.

*1 kilogram = 2.2 lbs.

Luang Thawin Sethapanikarn, Undersecretary for the Ministry of Economic Affairs has predicted that Thailand will have a successful rice trade in 1960-61. He explained:

"Thailand will harvest a paddy crop better than last year in both quantity and quality. At the same time, conditions in the Philippines and Pakistan, where floods have seriously damaged crops, are such that they are expected to purchase more rice from Thailand. In Japan, where original forecasts were made of a bumper crop, there has also been damage due to natural disasters. Meanwhile, Thailand has a long term agreement to supply rice to Indonesia and it will ship at least 15,000 tons there. The United States Government has also given assurances that it will not make available surplus rice under Public Law 480 to Thailand's traditional markets of Malaya, Hong Kong and Singapore. Moreover, the other rice exporting countries are not in a position to wrench these markets away from Thailand. Regarding the plan for the United Nations to supply U. S. surplus grain to underdeveloped countries, the matter is referred to the FAO and while there Thailand will have a right, as other members, to have its views heard."⁶⁹

¹Including Ceylon, India, Indonesia, Japan, Korea, Malaya, Pakistan, and the Philippines.

²Including Thailand, Cambodia, Taiwan and Viet Nam.

³Excluding U. S. S. R.

In order to support his prediction, Luang Thawin reported a significant improvement in rice exports, with new orders for rice shipment to Hong Kong, Singapore and Malaya. From November 1 to 6, 1960, Thailand exported a total of 10,334 tons of rice, bringing the total for the year to 1,022,493 tons, compared with 868,843 tons for the corresponding period in the previous year.⁷⁰

In conclusion, Thailand is predominantly an agricultural country. Even in 1960, about 85 per cent of the working population was still engaged in agriculture and extractive industries.⁷¹ For external purchasing power the economy depends largely upon the exports of four primary products, rice, rubber, teak and tin, a list in which rice ranks first by a wide margin. Therefore, it is clear that for the foreseeable future, rice will continue to dominate the Thai economy.

APPENDIX A³⁹The Rice Office

This government agency was established as the Rice Organization on November 12, 1945. The name was changed, however, to "Rice Office" on January 6, 1948. The Rice Office was an independent organization under the supervision of the Ministry of Economic Affairs. In the early period, when rice was subject to government monopoly (between 1945-1954) the Rice Office was in charge of procuring rice for the government stock. Later, after the monopoly on rice exports was given up (early in 1955) the Rice Office became the Government's representative to arrange government-to-government rice contracts.

In fact, while the Rice Office signed the contracts in the name of the Government, the export quotas to fulfill such contracts were distributed among private exporters by the Ministry of Economic Affairs to export rice in the name of the Government of Thailand. The Rice Office existed until the end of 1959, and was finally abolished at the beginning of 1960. The rice premiums, as well as the price were paid at the Rice Office.

APPENDIX B⁴⁰

The FAO Principles of Surplus Disposal and Guiding Lines

The Principles fall under three headings: General Principles; Principles concerning sales on concessional terms; and Principles governing sales of Government-held-stocks in exceptional volume or at an exceptionally rapid rate. In the solution to problems of agricultural surplus disposal, the GENERAL PRINCIPLES emphasize the importance of increased consumption, of orderly disposal and of avoiding interference with normal production and trade patterns; the PRINCIPLES GOVERNING CONCESSIONAL SALES include reference to the development of the use of surpluses for special distribution programs and for emergency relief; emphasize the importance of these disposals being absorbed through consumption which would not have taken place in the absence of the transaction on special terms; and recommend consideration in the light of the relative extent of the concessional trade and the degree of importance of trade in the commodity to the economy of the disposing country, of any competing exporter, and of the importing region; the GUIDING LINES cover seven specific aspects associated with the Principles, including the need to improve international coordination of national policies; the desirability of adjusting demand to supply through increasing consumption, and of securing unavoidable output reductions through

APPENDIX B (continued)

economic disincentives; not allowing special measures of disposal to overshadow the importance of taking basic measures for dealing with the problems of the economies of less developed countries which depend largely on export receipts for a limited number of primary products.

APPENDIX CGrade of Rice

Rice 100% -- refer to one ton of rice which contains no broken rice.

Rice 5% -- there is 5% of broken rice* in one ton.

Rice 10% -- there is 10% of broken rice in one ton.

Rice 20% -- there is 20% of broken rice in one ton.

Rice 25% -- there is 25% of broken rice in one ton.

*Broken rice -- broken grains smaller than three quarters of the kernel.

APPENDIX DBroken Rice Exportation

(1958 and 1959)

BROKEN RICE	1958 metricton	1959 metricton
White rice	305,861.83	299,914.41
Loozain rice	172.50	4,840.10
Parboiled rice	70.00	2,061.90
	<hr/>	<hr/>
	306,114.33	306,816.41
	<hr/>	<hr/>

Source: Excerpt from the Unpublished Statement of The
Ministry of Economic Affairs.

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