THAILAND

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Macroeconomic Situation

The Thai economy expanded by 6.7 percent in 2003, which was higher than last year's 5.4 percent increase. The world economic recovery induced an increase in Thai exports.[1] Domestic low interest rates also encouraged an increase in spending. Agricultural prices and farm incomes increased, as well as employment. Higher returns in the private sector resulted in increased dividends. Government expenditures put the emphasis on lifting incomes in the grassroots-level economy as well as promoting exports and continuous investments to increase people's confidence in the improved economic conditions. Together, these factors contributed to the higher growth rate in 2003.

In 2003, exports increased 18.6 percent in value to US$78.41 billion while imports increased 13.0 percent in value to US$74.20 billion. The inflation rate in 2003 was 2.1 percent. In spite of a 3.6-percent increase in food prices, non-food prices increased only 0.7 percent. The unemployment rate was 2 percent, slightly lower than last year's 2.2 percent. Industrial production increased 10.3 percent due to increasing domestic as well as export demand. The agricultural sector expanded 6.8 percent due to increased production as well as better prices yielding higher returns. Economic stability was considered better than in the previous year.

In 2004, it was expected that the economy would be better, with the growth of 7.0–8.0 percent, mainly due to an increase in domestic demand as well as an increase in foreign demand for Thai exports.[2] Low interest rates continued encouraging domestic spending along with an increase in government salaries and business dividends. Agricultural prices continued increasing. The inflation rate is estimated to be 2.2 percent, higher than the rate in 2003; the unemployment rate is still expected to be 2 percent. Private expenditure is anticipated to increase 6.0 percent, slightly less than last year while private investment is estimated to increase to be 19.0 percent. Government expenditure will increase about 4.0 percent with 8.0 percent for government investment. Exports are estimated to increase 7.3 percent because of the decrease in shrimp and broiler exports due to restrictions in main import markets and the impact from avian flu. Imports will increase at an estimated 9.4 percent.

Table 1. Thai Macroeconomic Situation 2001-2004 (unit: % growth rate)

	2001	2002	2003	2004a/	2004b/
GDP	2.1	5.4	6.7	7.0	8.0
Private Investment	4.9	13.2	17.9	19.0	20.0
Government Investment	-5.2	-5.8	-2.3	8.0	8.0
Private Consumption	3.9	4.9	6.3	6.0	6.2
Government Consumption	2.8	2.5	1.2	4.0	4.0
Export Value	-6.9	4.6	18.6	15.0	17.0
Import Value	-2.8	4.4	17.1	18.0	19.0
Inflation	2.2	0.7	2.1	2.2	2.5

Source: National Social and Economic Development Board
Note: a/ Trend b/Target

Government measures to support an economic expansion included 1) export promotion as well as new market expansion, 2) tourism promotion for both foreign visitors and local tourists, 3) small and medium enterprise SME promotion, 4) one tambon (subdistrict), one product (OTOP) quality and market improvement, 5) a plan for transforming assets into capital investment, and 6) an increase in government expenditure.

Supporting factors indicating better economic conditions in 2004 included:

- Continuing high household spending at low interest rates
- Increasing household income
- Better farm prices
- Better conditions for private investment
- Increases in government spending, especially at the local administrative level.

Negative factors included:

- The U.S. policy toward the deficit in current account and budget balance, affecting the exchange rate
- Increasing oil prices
- Avian flu outbreak
- The effect of U.S. anti-dumping policies on Thai shrimp exports
- Increasing wage rates and costs of construction
- The unrest in the south of Thailand.

Food Consumption Costs

The food price index, which was 102.6 (base year = 1998) in 2003, increased to 105.3 in 2004 due to an increasing trend in agricultural commodity prices. Food prices have been recovering from 2001 onward; nevertheless they were still lower than the index in 1998 before the economic crisis. The consumer price index had been increasing with a similar trend from 104.2 in 2002 to 106.1 in 2003 and 107.3 in 2004.

Per capita income increased to US$2,196 in 2003 and was expected to increase further in 2004.

Food Processing and Marketing

Food processing expanded 4.58 percent in 2003 due to a government export promotion program and improvement in food quality control, generating better confidence among the buyers. In 2004, the increase in this sector is estimated to be 10.38 percent as a result of the government "from farm to table" policy on improving agricultural and food product quality to meet both international and domestic demand, with emphases on good agricultural practice (GAP) and good manufacturing practice (GMP).[3]

In 2003, exports of food and beverages were US$11,395 million, an increase of 1.92 percent from last year with a share of 14.12 percent in total export values. These food and beverage exports were comprised of fishery products (about 36 percent), followed by cereal (about 17 percent), meat products (11 percent), fruits and vegetables (11 percent), sugar (7 percent), feed (5 percent) and others (13 percent).[4]

According to the Ministry of Commerce, important food and agricultural exports from Thailand, covering the items listed in Table 2, increased in value from US$159.8 million in 2002 to be US$185.2 million in 2003, an increase of 15.89 percent. Main export items were fishery products (46.98 percent), followed by rice (24.14 percent), poultry (13.50 percent), and cassava (9.86 percent). Fruit and vegetable exports increased through the year. Other items were other livestock products, grain (mainly maize), spices, nuts, pork, and coffee.

Table 2. Selected Important Food and Agricultural Exports from Thailand 2000-2003 (million US$)

Item	2000	2001	2002	2003
Fishery	135.5	102.3	77.8	87.0
Rice	40.9	34.4	37.9	44.7
Poultry	16.0	18.8	20.5	25.0
Cassava	12.8	13.0	12.3	15.7
Fruit	5.9	4.4	4.9	5.3
Vegetable	2.3	2.3	2.7	3.2
Other livestock products	0.9	1.2	1.0	1.4
Grain	0.4	1.0	0.9	1.3
Spice	1.4	0.8	0.8	0.9
Nut	0.5	0.4	0.4	0.5
Pork	0.3	0.4	0.5	0.3
Coffee	1.1	0.6	0.1	0.1
TOTAL	**217.9**	**179.6**	**159.8**	**185.2**

Source: Ministry of Commerce, Thailand

Agricultural Production and Trade

In 2003, the Thai economy expanded by 6.7 percent as estimated by the Bank of Thailand. The Office of Agricultural Economics estimated lower growth in the agricultural sector, that is, about 4.39 percent. Supporting factors were government policies and measures in production, marketing, and processing as well as favorable weather conditions. Nevertheless, negative factors were the Iraq war and the avian flu.

Crop production increased 4.64 percent in 2003 due to favorable weather conditions and high farm prices, which enabled an increase in farm production. Rice, cassava, sugar cane, oil palm, and para-rubber production increased. Livestock production increased at 4.27 percent, mainly due to the high demand for broilers in the international market, especially the EU and Japan, when imports from China had to be reduced because of the SARS outbreak. Fishery production increased 3.66 percent due to an increase in cultured shrimp; marine captures also increased in 2003. Basic agricultural processing increased 4.66 percent due to the one tambon, one product (OTOP) promotion. Food and agricultural processing increased 4.58 percent due to food safety promotion.

In 2004, it was expected that agricultural production would keep on increasing due to better technology, assuming favorable weather conditions. The increase was estimated to be 4.17 percent in 2004.The better prices in 2003 led to more investment in the agricultural sector. Crop production was expected to increase 3.40 percent. There would be an increase in cassava, oil palm, para-rubber, sugar cane, and maize. Livestock production would increase 5.68 percent, mainly from broiler production. Fishery production would increase 5.49 percent both from marine and freshwater production. Basic agricultural processing was estimated to increase 6.00 percent due to SME promotion at the community level and the OTOP promotion. Food and agricultural processing would increase 8.41 percent due to government programs on food safety.

RICE In the crop year 2003–04, rice planted area increased 1.33 percent to 9.227 million hectares (ha) while rice production increased 6.51 percent to 20.909 million tons and yield increased 6.51 percent to 3.345 ton/ha. Favorable rains led to these increases as well as better farm prices. In spite of the 2.88-percent increase in world rice production, the world rice trade was estimated to decrease 4.31 percent, producing better export prices in 2004.

MAIZE Maize planted area in the crop year 2003–04 was expected to decrease 2.94 percent to 1.136 million ha while production decreased 1.56 percent to 4.164 million tons, resulting in a yield increase of 1.42 percent to 3.164 ton/ha. The decrease in planted area was due to northeastern and central plain farmers switching to cassava. The better farm prices allowed better farm caretaking, which combined with favorable weather conditions to increase yields. Due to an expansion in the livestock sector, domestic demand for maize was higher while the increase in production was limited, leading to an increase in import requirements. Farm prices were higher also.

SOYBEAN Planted area increased 3.10 percent to 0.186 ha in the crop year 2003–04 while production increased 4.52 percent to 0.272 million ton and yield increased 1.47 percent to be 1.459 ton/ha. There was disease infection in the main production area that slowed down the increase in yield. The increase in production was due to better farm prices and favorable weather. Import prices were expected to be higher in the late half of crop year due to a decrease in U.S. production.

CASSAVA Harvested area was approximately 1.115 million ha, an increase of 3.37 percent due to better farm prices. Production increased 11.61 percent to 20.402 million tons while yields increased 7.98 percent to 18.300 ton/ha in 2004. There was an attempt to improve seed and soil conditions, nevertheless the rapid increase in area resulted in bringing marginally lower quality land into production, thus lowering the increase in yield. Domestic demand had been increasing both for livestock feed and agro-industries. Exports to the EU and China were expected to increase because of lower production in China. Nevertheless the increase in production was expected to outpace the increase in demand, resulting in relatively stable prices.

PINEAPPLE In 2004 pineapple harvested area was expected to increase 8.76 percent to 0.089 million ha due to better farm prices. Favorable weather conditions allowed a 12.24-percent increase in production to

2.073 million tons. The yield was 23.261 ton/ha, a 3.17-percent increase. Better farm prices allowed greater investment in farming, enabling higher yields and production. The market continued to increase in the latter half of the year due to demand from canned pineapple plants. Export prices were also expected to increase.

SUGAR CANE Better prices and an investment promotion on sugar cane plantations induced a 0.46-percent increase in planted area, to 1.145 million ha in 2004. The increase was relatively low due to competition from high cassava farm prices. Production was expected to increase 0.79 percent to be 74.843 million tons in 2004. Yield increases are estimated at 0.32 percent to 65.386 ton/ha. It was expected that exports from Brazil would decrease because of higher oil prices. World sugar prices were expected to increase, supporting better sugar prices by the end of the year.

COFFEE In 2004 it was expected that coffee harvested area would increase to 0.067 million ha, for an increase of 1.20 percent from last year. Production is estimated to increase by 11.34 percent to 0.060 million ton while yields will increase about 10.01 percent to 0.890 ton/ha. Favorable weather allowed for an increase in yields, and better farm prices contributed to better farm caretaking, which enabled higher production.

OIL PALM In 2004 harvested oil palm area increased 5.67 percent to 0.295 million ha while production increased to 5.114 million tons, an increase of 4.30 percent, which resulted in a lower yield of 17.333 ton/ha, a decrease of 1.30 percent. The main importers in the latter half of the year included China, India, Pakistan, and Bangladesh. An increase in soybean prices in international markets was expected to induce a better market for palm oil.

LONGAN In 2004 longan harvested area was 0.110 million ha, a 2.88-percent increase from last year. Production increased to 0.455 million ton or 14.61 percent while yields decreased by 15.38 percent to 0.413 ton/ha because of climate change and degraded fruit trees. Export prices tended to decrease due to a lower demand in the main export market.

LIVESTOCKS In 2003 swine stock increased 2.62 percent due to a government promotion program at the community level. Nevertheless disease problems still constrained growth in swine production. Cattle and dairy cow stock also increased 4.74 and 4.07 percent, respectively.

POULTRY At the beginning of 2003 broiler stock was 136.095 million heads, an increase of 2.82 percent from last year. In 2002 broiler exports increased due to the decrease in exports from China.

Food and Agricultural Policy

In the Ninth Plan (2002–2006), in order to be a competitive food producer in the international market, Thailand's food and agricultural plan puts the emphasis on dual development: the competitive sector and the subsistence sector. For the competitive sector, development will focus on agricultural production in irrigated areas and exclusive economic zones, with a target on agriculture and agro-industries for export. For the subsistence sector, the policy targets a self-sufficient economy and sustainable natural resource utilization. Growth in agricultural production is targeted at 2.0 percent annually while agricultural processing is targeted at 4.5 percent. Farm income is targeted to increase at 3.0 percent from farm as well as non-farm income.

Development strategies are as follows.

- Strengthening the capability of farm households, farm organizations, and community organizations in alignment with the Royal Initiatives on a self-sufficient economy, with an emphasis on sustainable agriculture and the promotion of community enterprises.
- Increasing competitiveness in agriculture and agro-industry via development of modern agricultural technology, research and development, quality control, economic zoning, and strengthening marketing management potential, both domestically and internationally.
- Raising farmers' living conditions via better education, income stability, and farm organization. There will be a promotion focused on participatory learning through the Subdistrict Agricultural Service and Technology Transfer Centers. Farm debt burdens will be alleviated. Farm social security, cooperative banks, and crop insurance system will be provided.
- Participatory management in natural resources will be promoted in an attempt to reconcile conflicts in natural resource utilization

Impact of Avian Influenza on the 2004 Thai Economy

According to estimates by the National Social and Economic Development Board (NESDB), the outbreak of avian flu will reduce economic expansion in 2004 by 0.39 percent—an aggregation of 0.29 percent in reduced exports, 0.08 percent in reduced tourism, and 0.02 percent in reduced private consumption.

Broiler exports from Thailand were banned by importing countries in the first half of the year, with the most impact during February and the first half of March. In late March, Japan and the EU started to import cooked broilers from Thailand. Exports recovered in the latter half of the second quarter. Exports were mainly from large–scale, commercial producers, so there were not many problems related to the inadequacy of raw material. It was estimated that about 60 million chickens were taken out of the industry. Thirty million were killed and destroyed, for which the farmers received a compensation of US$0.51/chicken. The other 30 million chickens were due to the reduction in delayed raising. The price per chicken was US$1.53, thus the loss in this case was estimated to be US$61.2 million. The estimated impact on associated industry was US$486 million. The relative share of the impact is given below.

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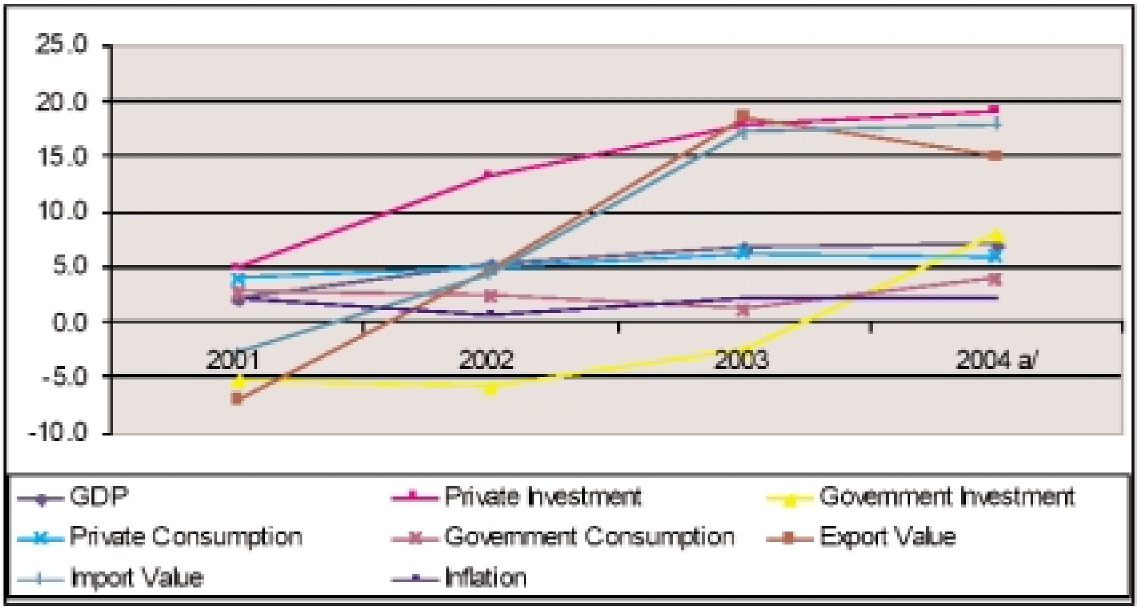
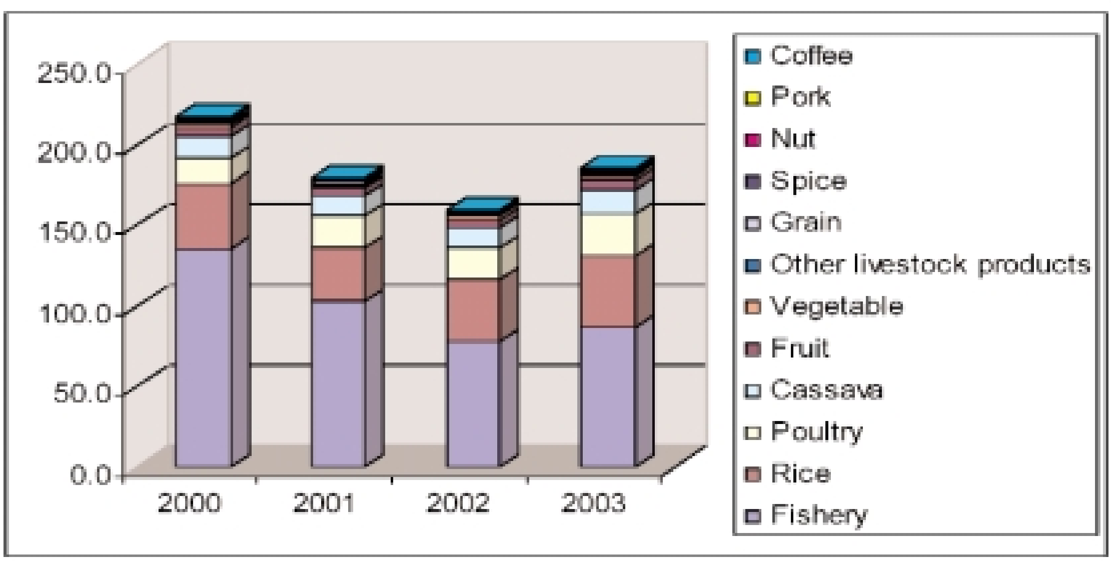
1 According to the IMF, in 2003, the USA economy expanded by 3.1 percent; while it was 2.7 percent for Japan, 0.7 percent for EU, and 9.1 percent for China. Overall, the world economy expanded by 3.2 percent.

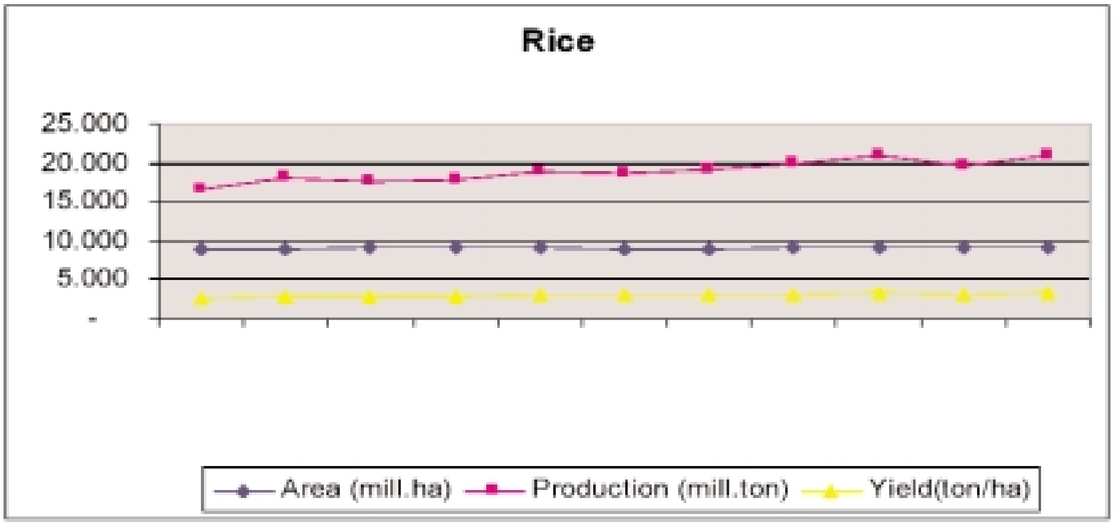
2 The world economy was expected to increase by 4.1 percent while it was 4.6 percent for the United StatesUSA, 2.5 percent for Japan, 2.0 percent for the EU, and 7.5 – 8.0 percent for China.

3 As estimated by Office of Agricultural Economics.

4 As estimated by National Food Institute


25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
2001
2002
2003
2004 a/
GDP
Private Investment
Government Investment
Private Consumption
Government Consumption
Export Value
Import Value
Inflation


250.0
200.0
150.0
100.0
50.0
0.0
2000
2001
2002
2003
Coffee
Pork
Nut
Spice
Grain
Other livestock products
Vegetable
Fruit
Cassava
Poultry
Rice
Fishery



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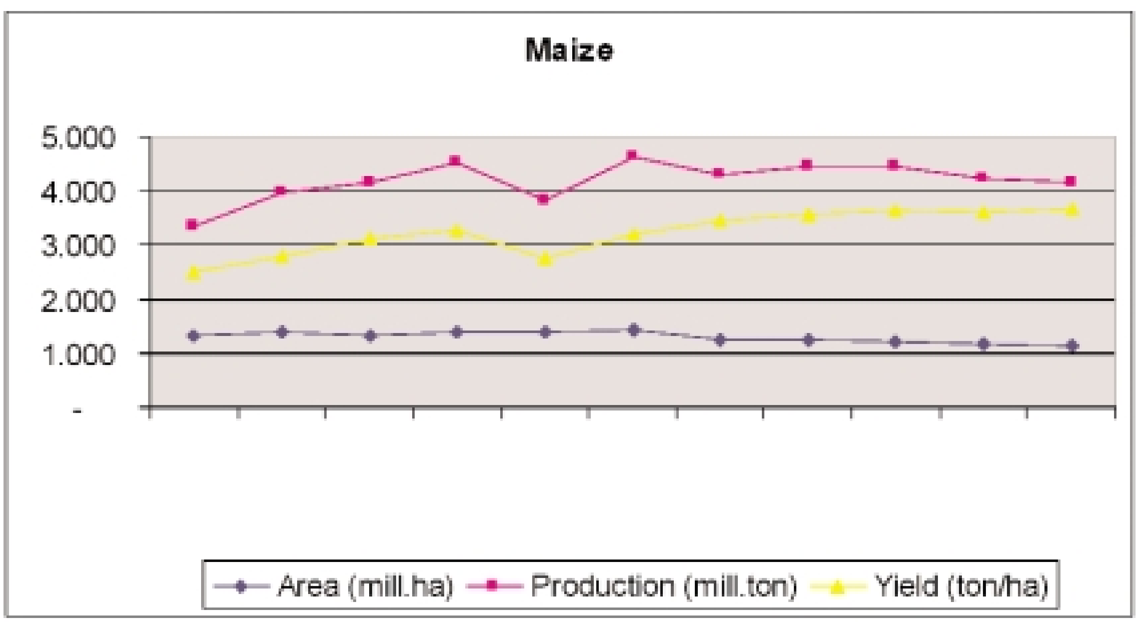

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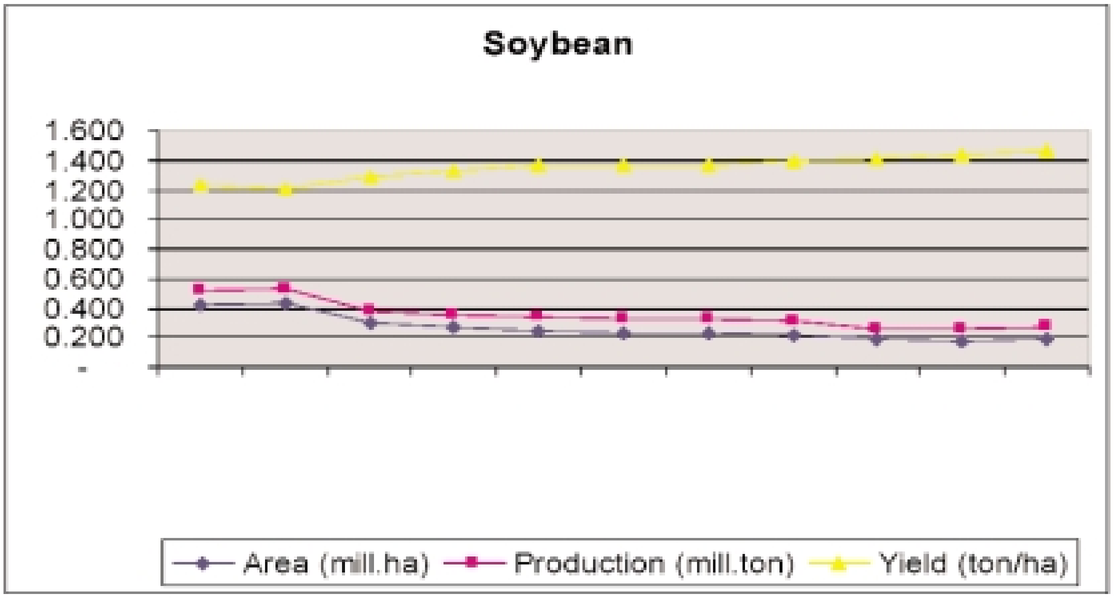

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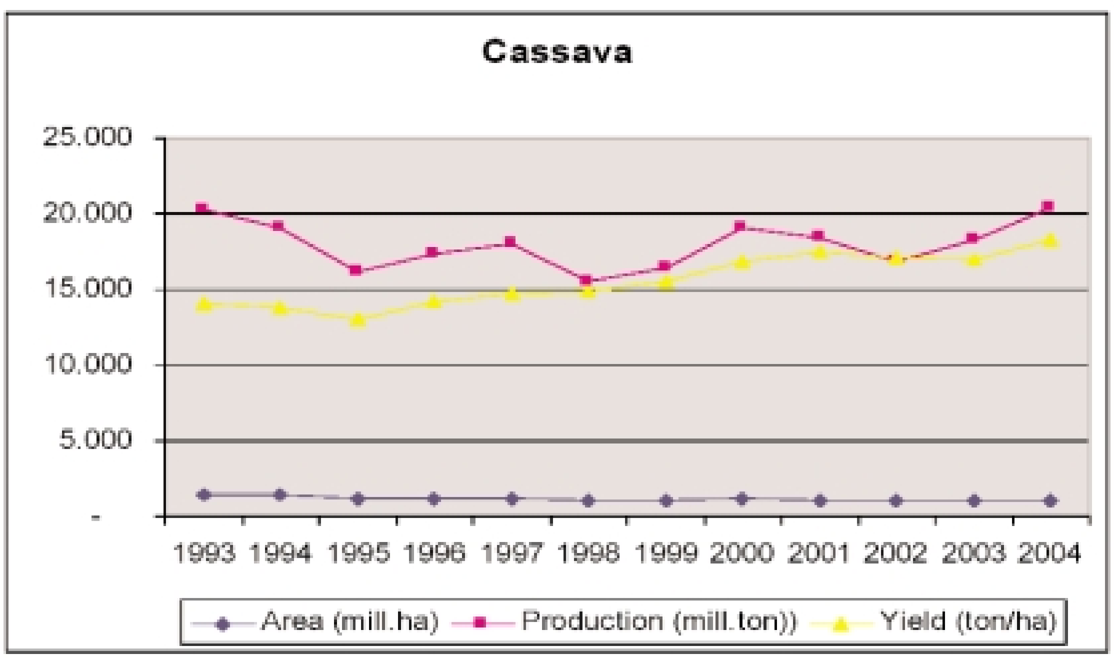

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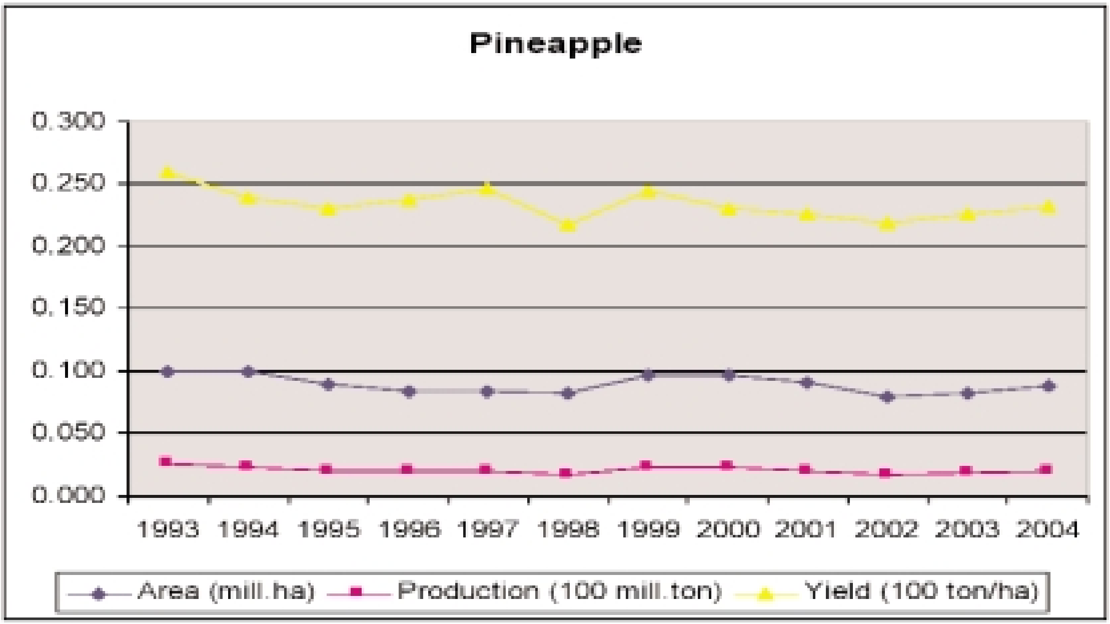

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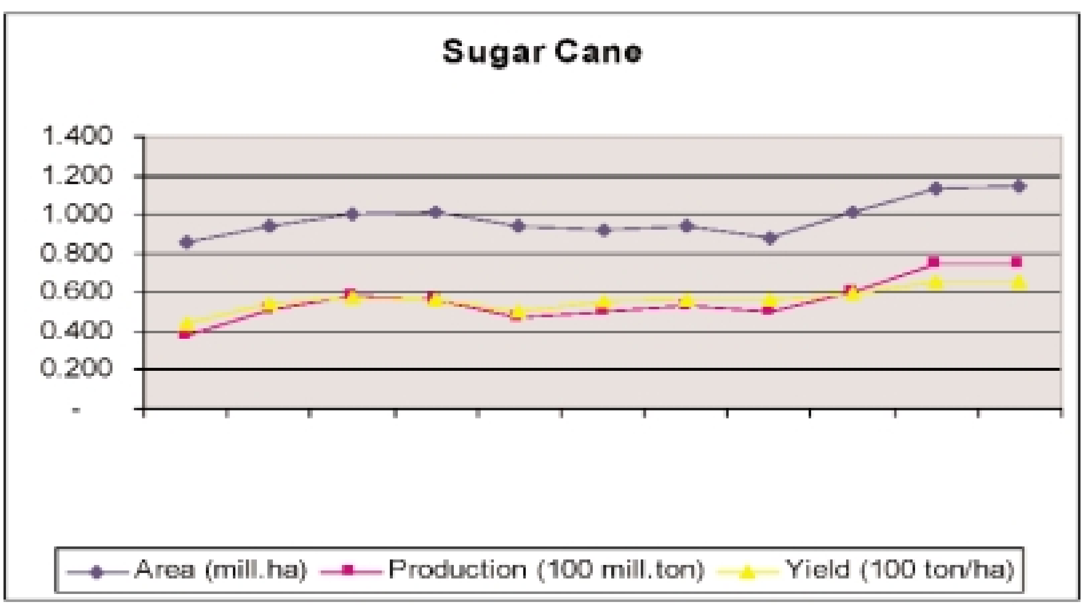

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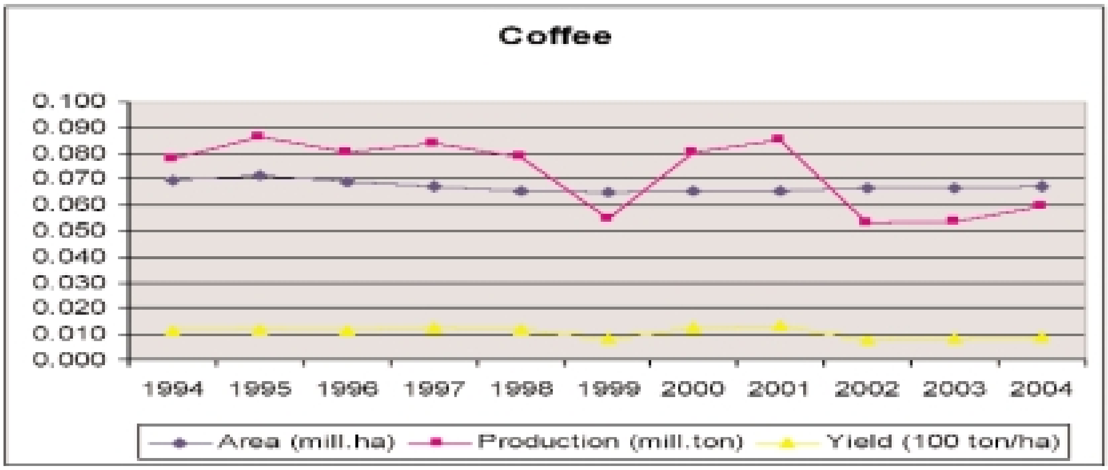

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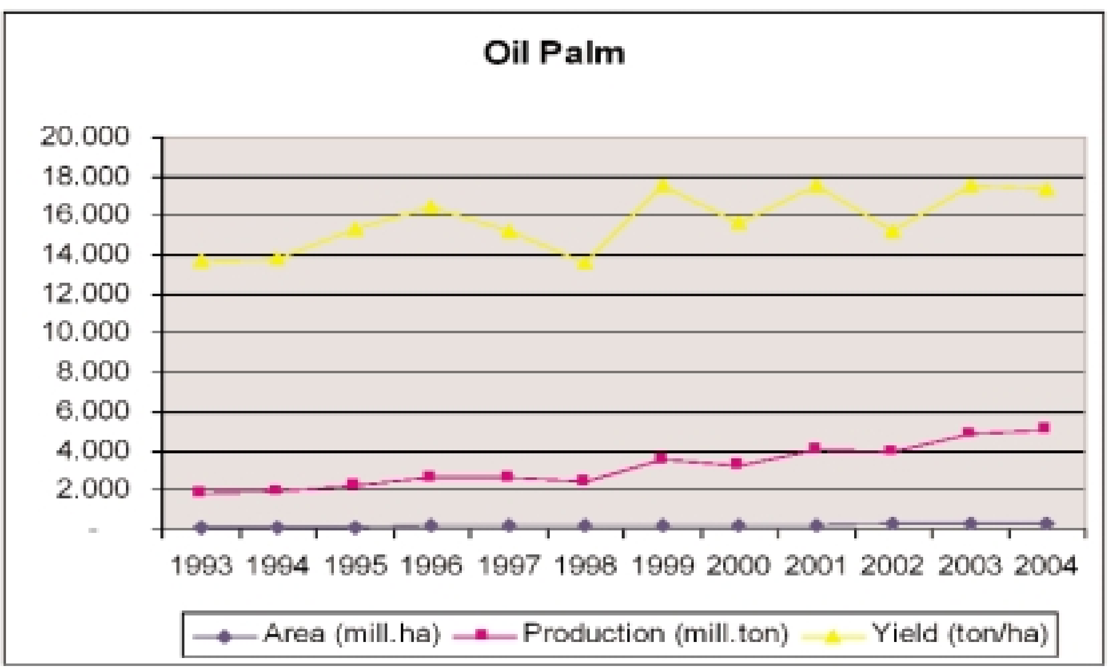

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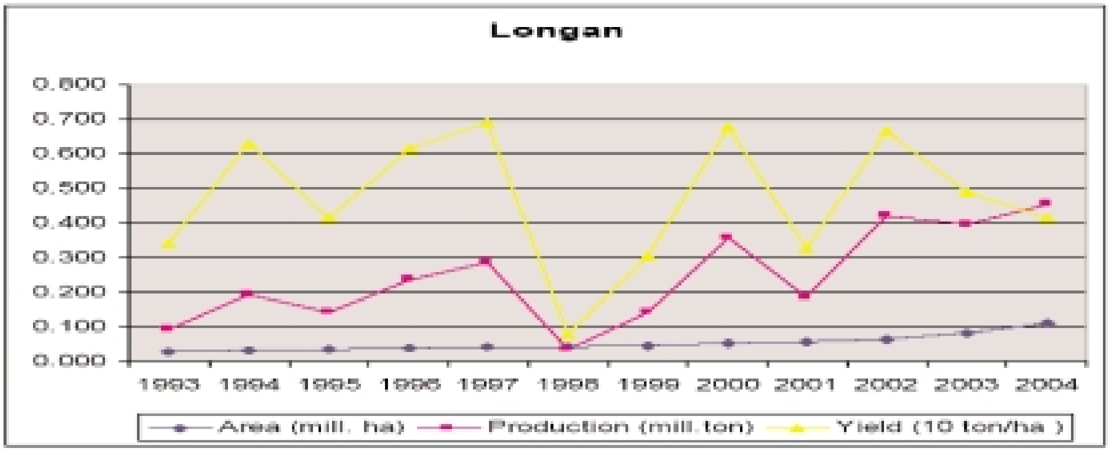

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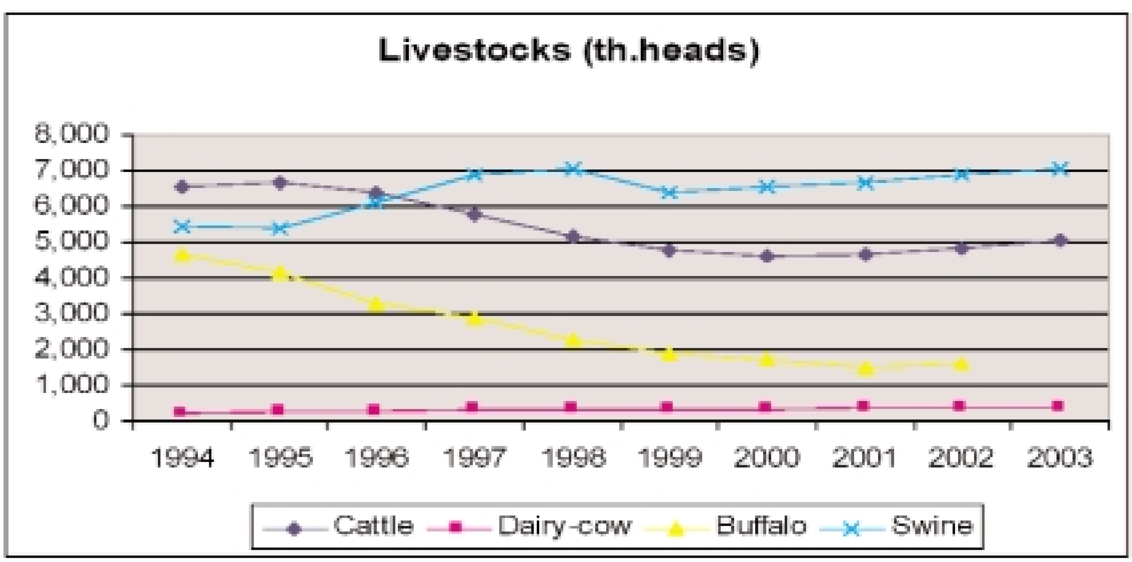

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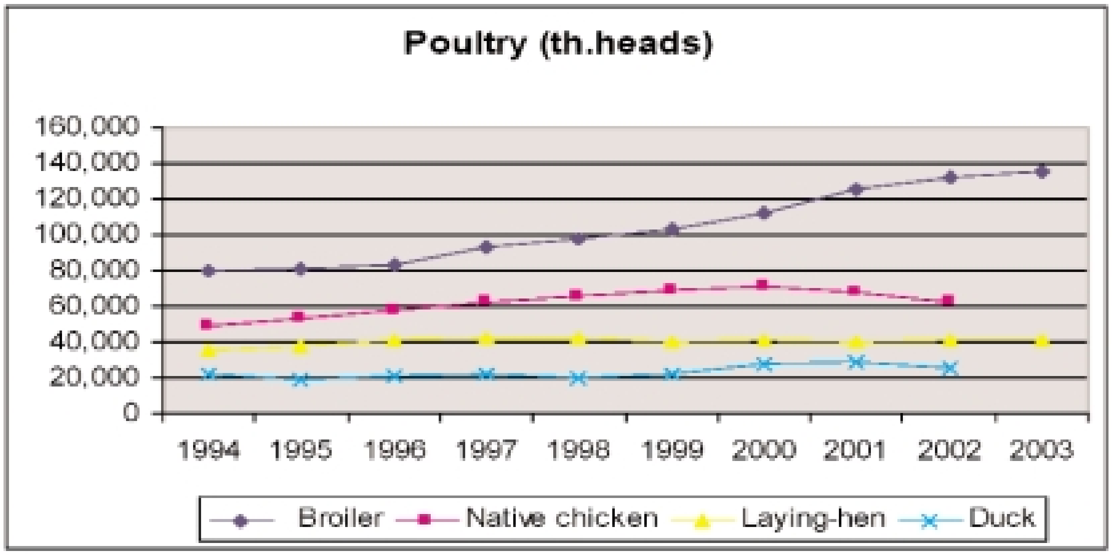

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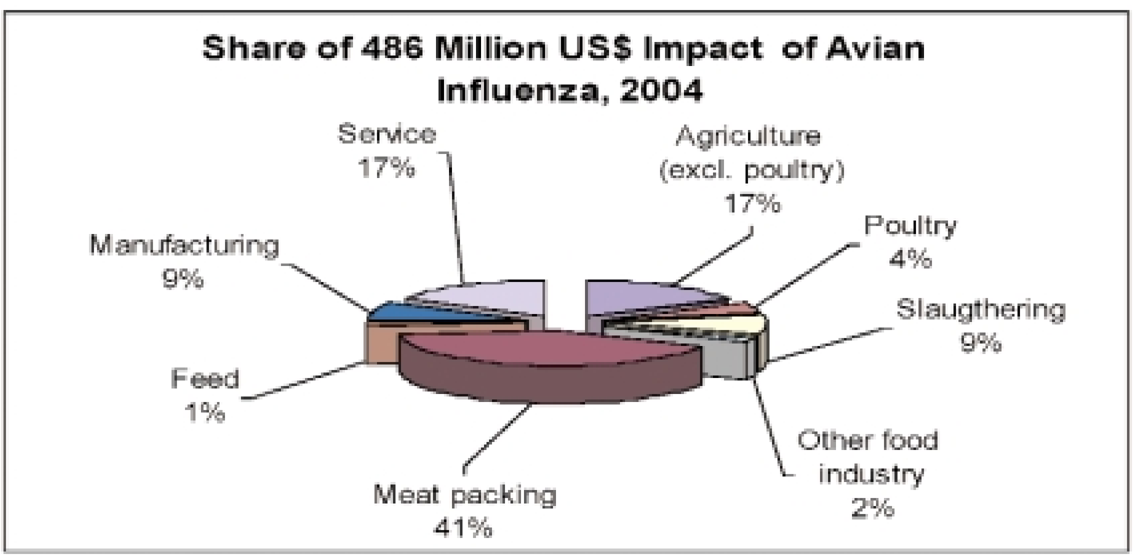


Source: Estimated from the data of the Office of Agricultural Economics

Food Sector in Thailand

Thailand is a net food exporter using more than 40 percent of its land in agriculture. Agricultural production employs about 60 percent of the total labor force while contributing about 13 percent to the GDP. Rice is the leading traded crop commodity while fishery exports, mainly frozen shrimp, are the leading food export from Thailand. Thailand is also one of the main exporters of sugar, cassava, and pineapple as well as tropical fruits (for example, longan, durian, and mangosteen). Food manufacturing is estimated to contribute around US$10 billion to the GDP. Food manufacturing was developed in the 1970s and grew rapidly. As a result, Thailand has become one of the top 10 producers of canned pineapples well as pineapple juice and concentrates, seafood products (mainly tuna), frozen shrimp, and frozen chicken. The National Food Institute estimated that food exports represent about 15 percent of the total Thai export revenues.

There are more than 9,000 food factories in Thailand employing about 600,000 employees. These factories are food processing plants, which can be categorized as fruits and vegetables, shrimp and seafood, poultry and their products, rice grain and cereal products, sugar and confectionaries, and juice and beverages. Before 1960, food exports were 70 percent of total agricultural exports, mainly in form of raw supplies from farms, with only simple processing such as drying, salting, and pickling. During the 1960s, through a government industrial promotion program, food processing technologies were developed, for example, for sweetened condensed milk, canned fruits and vegetables, and vegetable oil. The technologies were mainly from Taiwan and Japan. In the 1970s, the export earnings from food manufacturing increased. The industry had expanded from import substitution to export earning. In the 1980s, the export earnings from food manufacturing continued to increase. Technologies were also imported from the United States and the European Union. The main products were frozen and chilled items. In the 1990s, Thailand became more competitive in the world food market, with more focus on value-added products, quality, and food safety. The Department of Medical Science, Thai Industrial Standards Institute, Department of Agriculture, Department of Fisheries, and Department of Livestock are authorized certifying agencies for food safety and quality control.

Transportation

WATERWAYS Formerly, the main international port is Bangkok Port, located on the Chao Phraya River bank, but water depth constrained the capacity of this port. Vessels must be no more than 12,000 tons gross, less than 172 meters long, and not require a depth of over 8.2 meters. Laem Chabang Deep Sea Port in the eastern region, 130 kmss from Bangkok, was developed to be the main international port with a capacity for vessel no more than 33,000 tons gross. Mab Tapud Port, located in the eastern region, is the port for industrial settlement in this region. In the south, there are two main ports in Songkhla and Phuket. Along the Chao Phraya River, there are three more private ports. For bulk vessels, which carry mainly agricultural products, there is Ko Sichang Port in the eastern region, close to the Laem Chabang Deep Sea Port. There are about 10 main ports scattered in the south, mainly for fishing vessels, as well as numerous small fishing ports.

Considering approximately 6,000 kms of inland waterways, only 1,750 kmss can be used for transportation. During the dry season, that distance is reduced to 1,000 kmss.

RAILROADS Total rail access is 4,347 kms. The railroad center, Hua Lum Pong Train Station, is located in Bangkok. There are four main railroad routes. The northeast route starts from Bangkok to Nakorn Ratsima, Khon Kaen, and Udon Thanee and ends in Nong Khai (624 kms) with a subroute from Saraburee to Nong Khai (575 kms). The northern route from Bangkok to Chiangmai (751 kms) includes a subroute to Sukhothai (457 kms). The eastern route from Bangkok to Aranprathed (255 kms) has a subroute to the Deep Sea Port (134 kms) and another connecting to the northern route at Saraburee (168 kms). The southern route to Narathiwas (1,159 kms) has various subroutes to the southern provinces. Total distance covered by railroads is 3,890 kms.

ROADS Total road access is 63,983 kilometers. There are four main highways connecting various regions, for example, Paholyothin 1 (1,005 kms) from Bangkok to Chiangrai in the north, Mitraparp (508 kms) from Saraburee to Nong Khai in the northeast, Sukhumvit (305 kms) from Bangkok to Trad in the east, and Petchkasem (1,274 kms) from Bangkok to Songkhla in the south. Within each region, there are regional main highways and connecting highways.

There also is the Asian Highway built upon ECAFE (nowadays ESCAP) agreement in the early 1960s connecting capital cities, industrial cities, main ports, tourism areas, and important commercial areas in Asian countries.[1] The total length is about 65,000 kms. In Thailand, there are three main Asian Highways: A1 (698 kms) from the Myanmar border in the west to the Cambodian border in the east, A2 (2,209 kms) from the Myanmar border passing through Bangkok to the Malaysian border. Sub-Asian highways include A12 (522 kms), which goes from Saraburee in the central region and passes through Nakorn Ratsima, Khon Kaen, and Udon Thanee to Nong Khai in the northeast; A14 (870 kms) from A2 in Tak in the west through Sukhothai, Pitsanulok, and Khon Kaen to the Lao border; A15 (241 kms), which splits from A12 at Udon Thanee in the northeast and passes through Sakol Nakorn to Nakorn Panom; A18 (826 kms), which splits from A2 at Chumporn in the upper south and passes through Surat Thanee, Nakorn Si Thammarat, Pattalung, Haad Yai, Pattanee, and Narathiwas before reaching the Malaysia border. The total length of the Asian Highway in Thailand is 5,366 kms, with 529 kms overlapping with other highways.

AIR TRANSPORT There are three main domestic airlines—Thai Airways, Bangkok Airways and Tropical Sea Air—connecting 22 terminals. Additionally, there is Sahakol Air for charter flights. Thai Airways operates international routes connecting to 52 terminals in 36 countries. The routes include the North Pacific route to Los Angeles (4 flights/week), European routes (43 flights/week), Australian routes (14 flights/week), and Asian routes (59 flights/week).

Information on port and docking facilities are given in the appendix.

Utilities

ELECTRICITY Electrical power generation is 118,908 giga watts with nine main electrical power generation plants; two each in Bangkok, the central region, and the northeast and one each in the east, north, and south.

WATER AND IRRIGATION SYSTEMS There are nearly 700 large irrigation projects in Thailand covering approximately 3.5 million hectares. About 2 million ha are irrigated areas that benefit from small irrigation projects. Local governments take care of natural canals and rivers covering about 0.6 million ha. There are also various Royal irrigation projects in rural areas covering about 0.3 million ha. In sum, there are about 3.6 million ha within these water and irrigation systems. During 2003–2007, it is expected that an additional 0.7 million ha will become irrigated. Water carrying capacity is then estimated to increase by 3,803 million cubic meters.

Dams in Thailand can be classified into three categories: large irrigated dams for water distribution mainly in agricultural areas, large water reservoir dams, and small dams. There are three large irrigated dams in the central region (Chao Phraya, Vachiralongkorn, and Rama VI); one each in the upper south (Petch) and lower south (Pattanee) and two in the northeast (Naraesuan and Nam Chaeun). In terms of water reservoir dams, there are three in the central region (Bhumiphol, Sirikit, and Tub Salao), four in the north (Mae Ngard, Giew Lom, Mae Guang, and Lam Pao), five in the northeast (Lam Takong, Lam Phra Plaeong, Nam Oun, Huay Luang, and Lam Nang Rong) and one in upper south (Pranburee). There are numerous small dams, with nine important ones: one in the central region (Tub Salao), four in the north (Mae Yom, Mae Guang, Mae Tang, and Sindhugijprapa), one the northeast (Nong Wai), and three in the south (Rattaphume, Ta Chiad, and Duson). In addition to these irrigated dams, there are four main dams for electricity generation (Ubonrat, Sirinthorn, Chulabhorn, and Rachaprapha).

GAS Proven and probable reserves of Thai natural gas are estimated by the Thai Petroleum Authority to be 15 trillion cubic meters while liquefied petroleum gas (LPG) stocks are 319 million barrels with 228 million barrels of crude oil. Stock in the Thai-Malaysian jointly developed area shares about half of the existing stock. Energy demand in Thailand is equivalent to one million barrels daily, of which 60 percent is crude oil and the other 40 percent is LPG. Thai crude oil production capacity is only 64,000 barrels per day—or about 10 percent of the demand—which is increasing at a rate of 6 percent annually.

TELECOMMUNICATIONS

There are 5.4 million main telephone lines, 2.3 cellular phone lines, 204 AM radio stations, 334 FM radio stations, and 6 short-wave radio stations. The number of radios is about 14 million, while the number of television sets is 15 million with five television channels and one cable TV. Satellite receivers are allowed. The number of internet service providers (ISPs) is 13.

The Ministry of Information Communication and Technology (MICT) assumes responsibility in providing telecommunication services. There are two public companies affiliated with MICT—Telephone of Thailand (TOT) and the Communication Authority of Thailand (CAT)—that are in charge of telecommunication services.

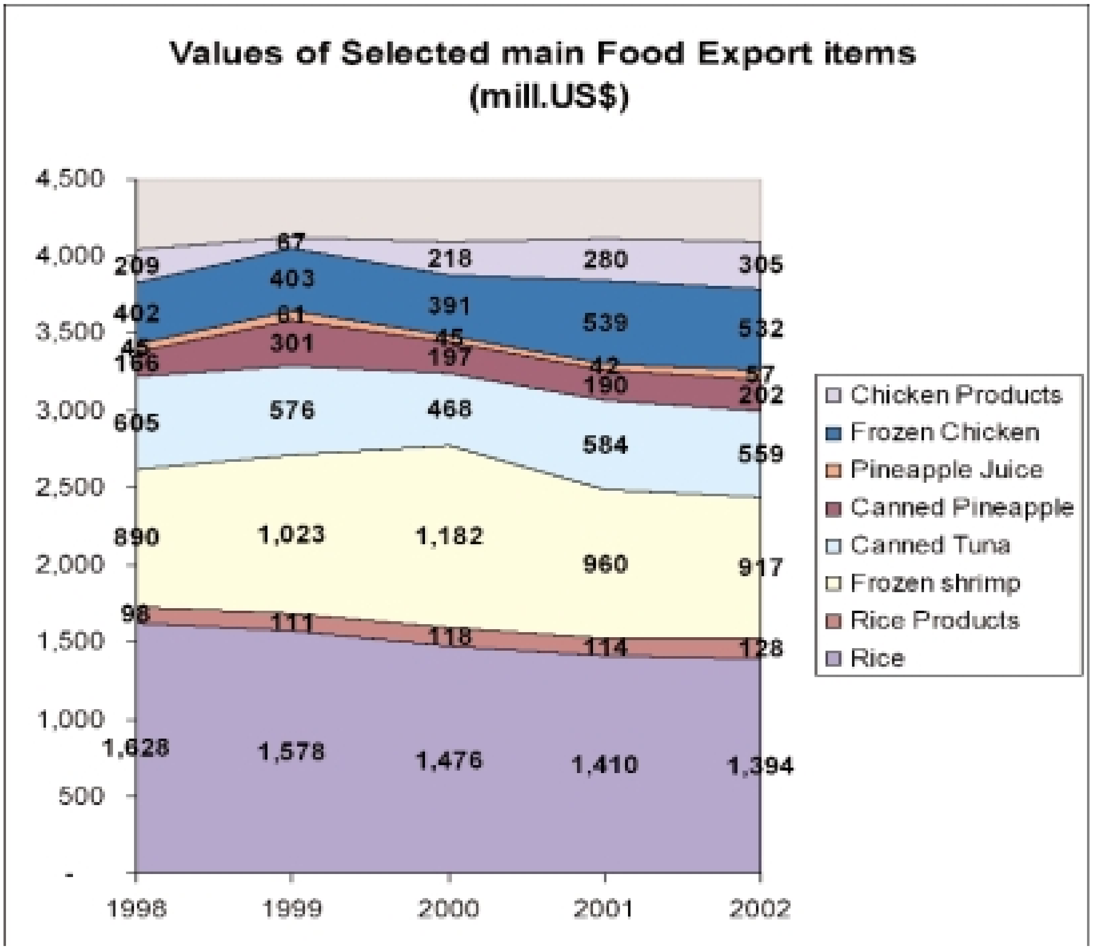
For food traders, there is the “Food Market Exchange” on the Internet, which provides information including price, volume, and buyers and sellers.

Most of infrastructures used to be state-owned enterprises. Recently, there is a trend to transform these state-owned enterprises to be public companies under supervision of the government.

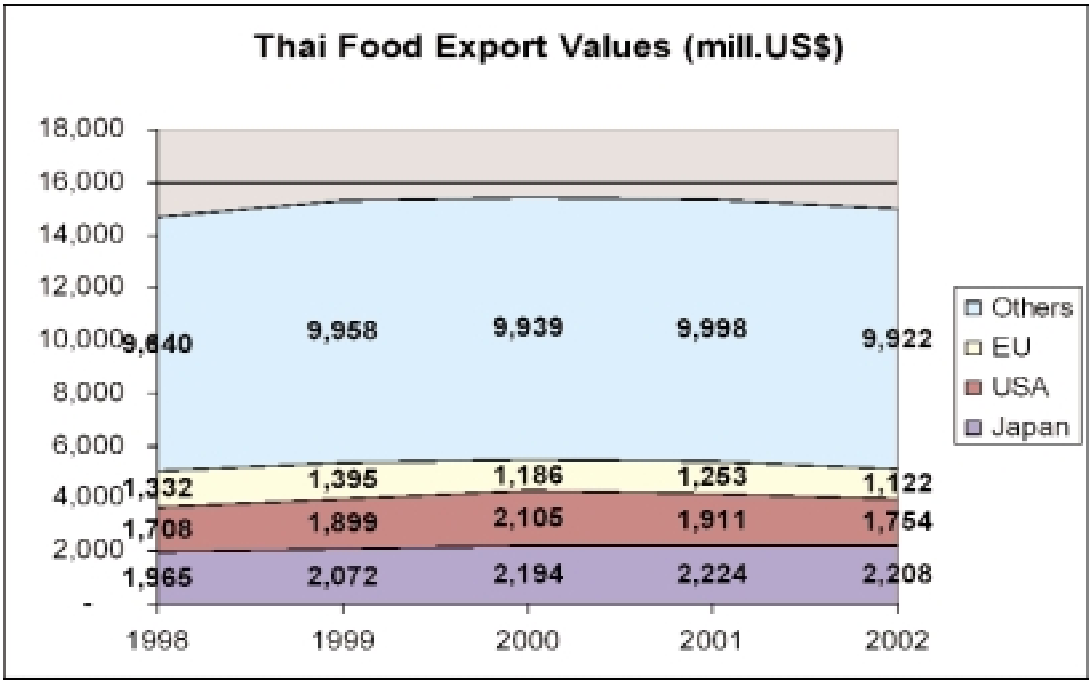
Measure of Performance

Input-output coefficients for 1998 are given in the appendix to show the use of these infrastructure components for every dollar of food sold. Because the food sector is not available on the I-O Table provided by the National Economics and Social Board, the coefficients are estimated from the relevant agricultural sector in relation to food production.

[1] The Asian Highway was built upon agreement among Afghanistan, Bangladesh, China, Cambodia, India, Indonesia, Iran, Laos, Malaysias, Pakistan, Singapore, Sri Lanka, Thailand, and Vietnam.



Source: National Food Institute



Source: National Food Institute

Number of Processing Food Plants in Thailand

Item	Small (<1.25 mill. US$)	Medium (1.25-5 mill. US$)	Large (>5 mill. US$)	Total
Meat & Poultry	529	40	21	590
Dairy Products	72	9	16	97
Fishery Products	377	80	23	480
Fat & Oils	179	39	11	229
Fruit & Vegetables	411	57	15	483
Cereal Products	2,792	61	24	2,877
Starch, Grind & Pound Grind	1,308	49	36	1,393
Syrup & Sugar	61	11	53	125
Tea, Coffee & Confectionary	471	25	13	509
Seasonings	384	17	10	411
Ice	1,294	15	1	1,310
Feedstuff	518	66	18	602
Alcoholic Beverages	20	11	30	61
Non-alcoholic Beverages	232	17	23	272
TOTAL	8,649	497	294	9,439

Source: National Food Institute

Domestic Cargo Transportation unit: th.tons

Transportation	1998	1999	2000	2001	2002
Road	384,421	392,244	397,976	400,242	459,919
Railroad	8,364	9,264	9,171	8,776	8,893
Waterway	20,127	17,300	25,173	17,833	26,208
Coastline	23,324	21,970	23,347	19,657	24,793
Air	46	56	57	66	56
Total	436,282	440,834	455,724	446,574	519,869

Source: Ministry of Transportation and Communication

Export Cargo Transportation unit: th.tons

Transportation	1998	1999	2000	2001	2002	2003
Sea	58,268	58,650	72,626	70,252	75,302	70,295
Road	2,269	5,327	3,997	5,001	5,645	6,071
Air	368	755	411	408	641	357
Parcel post	11	97	0	0	0	0
Total	60,916	64,829	77,034	75,661	81,588	76,723

Source: Ministry of Transportation and Communication

Import Cargo Transportation unit: th.tons

Transportation	1998	1999	2000	2001	2002	2003
Sea	56,060	67,516	69,918	87,975	75,547	81,526
Road	551	1,240	1,566	1,899	1,846	3,143
Air	245	436	1,791	489	727	29,171
Parcel post	2	4	113	176	307	361
Total	56,858	69,196	73,388	90,539	78,427	114,201

Source: Ministry of Transportation and Communication

Production of Natural Gas by Field, 2003 unit: MMSCFD

FIELD	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
SIRIKIT	56	56	39	57	57	56	56	57	58	57	53	53	55
SURAT THANI	3	3	6	4	4	3	4	5	3	6	8	7	5
NAM PHONG	52	53	52	55	53	50	49	48	47	47	46	47	50
ERAWAN	244	278	295	292	292	293	290	283	283	276	275	269	281
BAANPOT	10	7	5	4	3	3	9	5	5	13	12	13	7
SATUN	105	93	75	78	96	102	91	87	81	81	124	134	96
SOUTH SATUN	23	30	33	40	38	31	33	31	34	28	25	24	31
PLATONG	27	21	16	16	14	15	19	25	20	17	19	16	19
FUNAN+JAKRAWAN	192	194	197	214	181	185	201	190	168	191	174	181	189
BONG KOT	424	422	426	449	513	508	916	565	601	581	560	560	545
GOMIN	11	36	38	42	40	61	44	51	55	62	58	43	45
TANTAWAN	38	47	54	54	77	68	51	52	57	59	55	60	56
BENJAMAS	185	183	181	181	162	165	159	164	164	163	167	154	169
PAILIN	343	409	461	417	415	410	381	418	428	418	396	374	406
PLAMUK	49	54	37	50	49	50	49	49	50	49	50	49	49
PLADAENG	36	23	34	10	16	16	12	13	10	13	10	12	17
TRAT	43	63	68	57	55	80	87	70	48	51	34	39	58
YALA	14	24	39	41	33	32	39	33	31	25	23	25	30
TOTAL	1856	1997	2057	2061	2096	2126	2488	2146	2143	2138	2088	2061	2106

Electricity Generation by System Type, 2003 unit: GWh

TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
HYDRO	689.1	698.0	804.4	737.3	818.8	627.3	457.3	475.2	360.4	391.8	613.9	566.5	7240.0
THERMAL	2433.6	2397.2	2694.5	2569.5	2986.9	2752.1	2649.3	2403.0	2615.2	2301.6	2845.3	2395.2	31043.3
COMBINED CYCLE	1768.7	1446.5	1800.0	1693.1	1626.7	1624.5	1406.7	1515.2	1427.1	1846.5	1764.7	1518.4	19438.2
GAS TURBINE	98.9	92.5	70.6	89.8	93.9	89.4	91.8	93.5	91.1	102.1	74.5	87.3	1075.3
DIESEL	0.0	0.0	0.4	1.0	1.1	0.4	0.4	0.0	0.0	0.0	0.0	0.0	3.4
GEO-THERMAL	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	1.6
NON-CONVENTIONAL	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
SPP.	1082.0	1049.5	1080.8	1114.3	1129.6	1107.8	1156.4	1131.6	1132.5	1110.2	1081.2	1123.8	13299.8
ENERGY PURCHASED	189.8	140.4	147.0	114.7	174.7	223.7	237.1	259.5	284.3	298.8	221.7	181.6	2473.4
IPP	2712.2	2995.6	3617.3	3643.3	3708.1	3586.2	4053.3	4385.4	4051.1	4215.2	3883.7	3481.4	44332.8
TOTAL	8974.5	8819.9	10215.1	9963.1	10540.1	10011.5	10052.4	10263.6	9961.8	10266.5	10485.1	9354.4	118908.1

Source: Electrical Generation Authority of Thailand

Consumption of Electricity unit: GWh

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1988	2098.55	2112.42	2423.99	2378.65	2347.94	2416.42	2388.04	2434.03	2462.76	2418.33	2333.46	2295.78	28110.37
1989	2436.88	2403.39	2667.05	2687.28	2853.13	2825.24	2797.46	2858.14	2844.56	2859.56	2854.15	2685.40	32772.23
1990	2828.59	2887.82	3168.06	3115.59	3297.14	3292.14	3217.78	3347.20	3319.66	3298.60	3280.80	3149.58	38202.96
1991	3314.37	3122.48	3640.19	4327.22	3832.93	3707.05	3710.73	3754.86	3738.88	3880.50	3675.32	3534.35	44238.87
1992	3581.04	3603.66	4052.96	4104.55	4412.12	4289.76	4305.74	4237.26	4494.18	4224.85	4024.67	4000.38	49331.17
1993	4023.41	4077.50	4534.43	4634.44	4872.49	4752.60	4884.62	4755.88	4801.03	4780.19	4683.34	4431.37	55231.29
1994	4684.85	4802.58	5173.91	5113.22	5324.37	5359.30	5279.66	5356.08	5510.53	5312.76	5322.06	5318.70	62558.02
1995	5277.38	5180.36	6008.13	5939.72	6208.02	6197.55	6088.77	6203.21	6055.74	6083.37	5955.21	5672.86	70870.31
1996	5799.39	5778.19	6491.92	6471.81	6680.36	6672.99	6663.39	6677.84	6611.63	6654.53	6538.53	6042.37	77082.95
1997	6281.82	6275.29	6990.40	6836.22	7339.59	7393.96	7187.10	7132.71	6844.41	6807.55	6565.61	6420.12	82074.78
1998	6359.65	6381.24	6964.59	6909.33	7278.84	6909.36	6785.90	6714.23	6664.65	6592.06	6421.88	5917.90	79899.63
1999	6107.21	6149.38	6888.28	6673.78	6839.72	6912.67	7105.31	7169.70	7164.33	6878.76	6732.32	6176.83	80798.29
2000	6753.77	6445.79	7439.36	7161.11	7707.70	7518.84	7457.34	7654.97	7465.83	7469.47	7380.95	7141.74	87596.26
2001	7234.81	7170.97	7778.43	7804.92	8204.07	7976.05	7961.77	8156.50	7988.92	8011.26	7382.17	7196.22	92866.09
2002	7261.88	7297.72	8411.84	8391.66	8668.62	8510.63	8721.18	8579.94	8347.70	8553.20	8189.64	8189.00	99122.73
2003	8037.16	7838.80	9086.98	8729.81	9335.75	9067.02	9009.04	9266.72	9031.35	9234.60	9065.00	8435.63	106137.89

Source: Electrical Generation Authority of Thailand

Input-Output Coefficient: Agricultural Production - Infrastructure

Infrastructure	Paddy	Maize	Cassava	Cattle	Swine	Poultry	Marine fishery	Freshwater fishery	Slaughtering	Canned and Preserved Dairy	Canned and Preserved Meat	Canned and Preserved Fruits & Vegetables	Canned and Preserved Fish & Seafood
Electricity	0.000466	0.000352		0.005596	0.017557	0.008566		0.010850	0.006469	0.024376	0.030543	0.018907	0.004495
Pipe Line						0.000125				0.000382	0.002441	0.000326	0.000150
Water Supply System				0.000011	0.000275	0.000029	0.000032	0.000001	0.000019	0.000027	0.000697	0.000084	0.000044
Residential Building Construction									0.000019				
Non-Residential Building Construction	0.001104	0.002462	0.001058	0.003798	0.002181	0.006766	0.000014	0.001072	0.000101	0.000697	0.000312	0.000312	0.001083
Other Construction	0.000001		0.000240		0.000359				0.000010	0.000000		0.000002	0.000000
Restaurants & Drinking Places					0.000644	0.000002	0.000009	0.000333	0.000088	0.001395	0.000462	0.005286	0.000564
Hotels & Lodging Places					0.000016		0.000020		0.001084	0.001864	0.000719	0.003736	0.000185
Railways										0.000153	0.000064	0.000228	
Route & Non-route of Road Passenger Transport	0.000131	0.000418	0.004714	0.015117	0.000197	0.004349	0.000006		0.000014	0.001277	0.006959	0.000276	0.000175
Land Transport Supporting Services										0.000049	0.000329		
Coastal & Inland Water Transport												0.000059	
Air Transport					0.000101		0.000003				0.001699	0.000938	0.000123
Other Services	0.000164												
Silo & Warehouse									0.000029	0.000017	0.000061	0.000231	0.000309
Post & Telecommunication				0.000579	0.002487	0.000418	0.000249	0.000023	0.000697	0.000915	0.005396	0.002379	0.003461

Source: Calculated from NESDB Input-Output Table

THAILAND

	Units	1998	1999	2000	2001	2002	2003	2004E	2005F
FOOD CONSUMPTION PATTERNS									
Per capita caloric intake	Cal/day	1,751	1,751	1,751	1,751	1,751	1,824	na	na
Protein (% of calories)	%	13.2	13.2	13.2	13.2	13.2	12.2	na	na
Fat (% of calories)	%	22.2	22.2	22.2	22.2	22.2	14.9	na	na
Carbohydrates (% of calories)	%	64.3	64.3	64.3	64.3	64.3	72.9	na	na
INCOME AND FOOD PRICE									
Per capita income	US$/capita	1,836	1,988	1,964	1,829	2,004	2,196	na	na
% of disposable income spent on food	%	35.1	33.3	32.2	33.9	33.6	na	na	na
% spent eating out	%	6.3	6.3	7.0	7.4	7.7	na	na	na
Food price index	1998=100	100.0	98.2	97.1	98.7	99.0	102.6	105.3	na
General price index (CPI)	1998=100	100.0	100.3	101.9	103.5	104.2	106.1	107.3	na
POPULATION									
Total population	Million	61.2	61.8	62.9	63.4	63.0	63.3	63.5	na
Urban	Million	11.3	11.4	11.5	17.8	19.6	19.7	19.8	na
Non-urban	Million	50.1	50.2	50.4	44.5	43.3	43.6	43.7	na
Share of population in the following age groups									
0-4 years	%	8.8	8.0	7.9	7.8	7.9	7.7	7.4	na
5-14 years	%	17.9	15.6	15.4	15.8	15.5	16.2	15.8	na
15-19 years	%	9.6	8.7	8.3	7.9	6.2	8.3	8.2	na
20-44 years	%	41.6	44.8	44.8	44.4	44.9	42.3	41.9	na
45-64 years	%	16.6	16.9	17.3	17.7	18.7	19.2	19.8	na
65-69 years	%	2.2	2.4	2.5	2.5	2.6	2.7	2.7	na
70+ years	%	3.0	3.6	3.8	3.9	4.2	4.0	4.1	na
Median age of population	Years	26.9	27.4	29.4	29.8	29.8	na	na	na
Female labor force participation	%	71	70.9	70.8	70.8	70.7	na	na	na
LIFE EXPECTANCY									
Males	Years	67.4	67.4	68.2	68.2	68.2	68.2	68.2	68.2
Females	Years	71.7	71.7	72.4	72.4	72.4	72.4	72.4	72.4
FOOD INFRASTRUCTURE									
Trade capacity	1,000 tons	7,568	7,862	7,394	9,186	8,609	8,820	na	na
Grain exports	1,000 tons	6,675	6,923	6,254	8,237	7,578	7,656	na	na
Grain imports	1,000 tons	893	939	1,140	949	1,031	1,164	na	na
Total food and agricultural trade	Million US$	11,891	13,335	12,475	12,957	12,767	14,391	na	
Total food and agricultural exports	Million US$	9,640	9,958	9,939	9,998	9,740	11,225	na	
Perishable products	Million US$	5,419	5,845	6,060	5,951	5,727	5,456	na	
Fishery exports	Million US$	3,999	4,077	4,315	4,007	3,544	4,415	na	
Total food and agricultural imports	Million US$	2,251	3,377	2,536	2,959	3,027	3,166	na	
Perishable products	Million US$	892	1,667	1,118	1,080	1,128	1,595	na	
Fishery imports	Million US$	815	1,543	728	920	995	1,107	na	
Road access	Kms	55,321	57,233	59,306	60,788	62,781	63,983	na	
Rail access	Kms	4,120	4,120	4,120	4,179	4,179	4,347	na	
Power generation	Gigawatts	93,250	96,330	96,000	103,165	110,945	118,908	na	
Percent of population with refrigerators	%	59	59.2	59.5	73.5	73.5	na	na	
FOREIGN INVESTMENT IN THE FOOD SECTOR									
Net FDI in food sector	Million US$	76.1	-18.7	na	na	na	na	na	
ROLE OF AGRICULTURE AND TRADE IN THE ECONOMY									
Agriculture as a share of GNP (Real)	%	12.7	11.2	10.6	10.6	10.5	10.2	na	
Self sufficiency in grains	%	86.6	87.9	83.2	89.9	88.0	na	na	
Self sufficiency in horticulture products	%	94.1	92.0	92.5	89.3	87.1	na	na	
MACROECONOMICS INDICATORS									
GDP growth	%	-10.5	4.4	4.8	2.1	5.4	6.7	na	
Interest rate	%	15.50	10.50	8.13	7.40	6.50 – 7.00	5.75	5.50	
Exchange rate	Baht/US$	41.37	37.84	40.16	44.48	43.00	41.53	39.10	