

---

***PART I:***  
***EXISTING CONDITION***  
***AND FUTURE PERSPECTIVE***  
***OF BANGKOK***

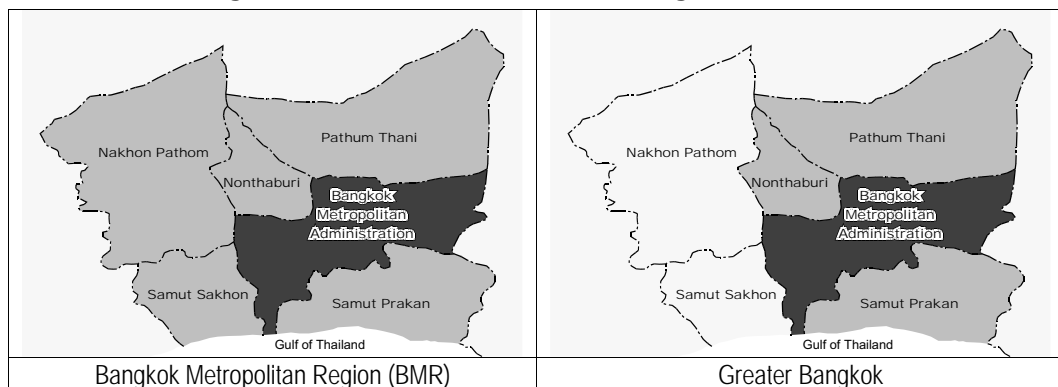
---

## CHAPTER ONE: EXISTING CONDITION OF BANGKOK

### 1.1 OUTLINE OF BANGKOK AND SURROUNDING AREAS

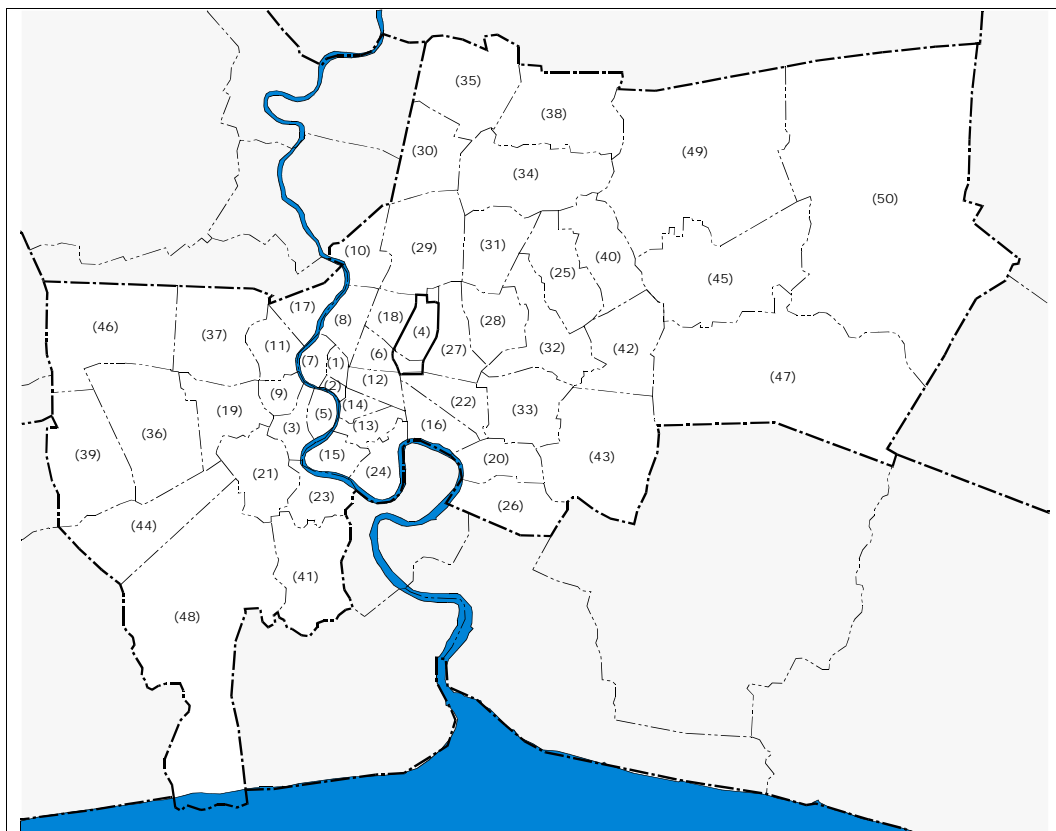
The capital city of Bangkok is located about 36 km upstream of the mouth of the Chao Phraya River. Around the capital city, there are several groupings of areas that have strong connections with Bangkok. These include Bangkok Metropolitan Region (BMR), and Greater Bangkok. BMR consists of the administrative areas of the Bangkok Metropolitan Administration (BMA) and the surrounding five provinces of Samut Prakan, Nonthaburi, Pathum Thani, Nakhon Pathom, and Samut Sakhon. Greater Bangkok is a smaller area made up only of BMA and the three provinces surrounding BMA, namely; Pathum Thani, Nonthaburi, and Samut Prakan. These areas are depicted in the following figures.

Figure 1.1: Area of BMR, Greater Bangkok, and BMA



Currently, BMA consists of 50 districts after the restructuring of district composition in 1997. The districts of BMA are illustrated in the following figure.

**Figure 1.2: District Composition in BMA**



1	Pom Prap Sattru Phai	11	Bangkok Noi	21	Chom Thong	31	Lat Phrao	41	Thung Khru
2	Samphanthawong	12	Pathum Wan	22	Vadhana	32	Bang Kapi	42	Saphan Sung
3	Thon Buri	13	Sathon	23	Rat Burana	33	Suan Luang	43	Prawet
4	Din Daeng	14	Bang Rak	24	Yan Nawa	34	Bang Khen	44	Bang Bon
5	Khlong San	15	Bang Kho Laem	25	Bueng Kum	35	Don Mueang	45	Min Buri
6	Ratchathewi	16	Khlong Toei	26	Bang Na	36	Bang Khae	46	Thawi Watthana
7	Phra Nakhon	17	Bang Phlat	27	Huai Khwang	37	Taling Chan	47	Lat Krabang
8	Dusit	18	Phaya Thai	28	Wang Thong Lang	38	Sai Mai	48	Bang Khun Thian
9	Bangkok Yai	19	Phasi Charoen	29	Chatu Chak	39	Nong Khaem	49	Khlong Sam Wa
10	Bang Sue	20	Phra Khanong	30	Lak Si	40	Khan Na Yao	50	Nong Chok

Source: BMA

## **1.2 NATURAL SETTING**

### **1.2.1 Topography**

Bangkok is located on the flat delta plain of the Chao Phraya River, as a part of the Lower Central Plain of Thailand. General ground level around the city is in a range of 1-2 m above mean sea level.

The city and its environs have suffered from land subsidence due to ground water extraction from deep aquifers and the ensuing compression of intermediate clay layers. The subsidence has gradually been reduced by a restriction imposed on the ground water intake.

### **1.2.2 Meteorology**

Bangkok has a tropical humid climate, influenced by the southwest and northeast monsoons. There are three distinctive seasons in a year. These are as given below:

- ‘Hot season’ from February to April with maximum temperature of about 35°C,
- ‘Wet season’ from May to October, influenced by the southwest monsoon, and
- ‘Cool season’ from November to January with a mean temperature of 21°C, influenced by the northeast monsoon.

The average monthly temperature ranges between 25.6-29.7°C. Relative humidity is high between 71% in January and 82% in September, resulting in an average of 77%. Total annual evaporation is almost 1,800mm. Average wind velocities are in the range of 2.0-4.8 knots, although much higher velocities are experienced during storms and typhoons.

Mean monthly rainfall varies widely from 9.1 mm in January to 344.2 mm in September. Total annual mean rainfall of 1,496 mm occurs during an average of 125 rainy days each year. Storms are usually intense but occur over limited areas at a time moving across the city. These storms cause frequent short- term flooding in many low-lying areas of the city.

### **1.2.3 Geology and Hydro-geology**

The soils in Bangkok area are the result of long-term accumulation of sedimentary deposits transported southwest by Chao Phraya River. Many areas have layers of artificially imported fill to raise the ground levels to counter the flood problem.

Bangkok soils are classified into five groups including the bottom sand layer as follows:

- 1) Top soil of dark gray clay varying in thickness from 0.5 to 3m,
- 2) Compressible soft and very soft clays, 3-8 m in thickness with an unconfined compressive strength of less than 10 t/m<sup>2</sup> overlying medium strength clays. Combined thickness varies up to a maximum of 16m.
- 3) Stiff and very stiff clays, interlaid with soft clay typically at a depth of 14 m but difficult to identify. Compressive strengths are in a range of 10-40 t/m<sup>2</sup> and densities 1.55-1.65 t/m<sup>3</sup>.
- 4) Hard clay of different colors. Unconfined compressive strength is greater than 40 t/m<sup>3</sup>. Thickness ranges between 2-6 m.
- 5) Sand lying beneath the clay layers at depths of between 21 and 24 m.

Ground water in the region originates in the central plain and flows through clay and rock layers before being stored in underlying granular deposits. Drilling to 650 m revealed that there were eight aquifers between -50 and -550 m before it encountered bedrock.

Intensive extraction of groundwater until the 1980s resulted in subsidence due to consolidation of intervening clay layers.

#### **1.2.4 Flora and Fauna**

The areas surrounding the city are mostly covered with paddy fields. There has been vast shrimp farm development along the coast in the south. Vegetation is sparsely found inside the city, and public parks are scarce with only one large park (Lumpini Park). Fauna is also insignificant inside the city.

#### **1.2.5 Waterways (*Khlong*)**

For centuries, the river (Chao Phraya) and canals (*khlongs*) served as the transportation arteries of Thailand. In a land that flooded whenever the monsoon-swollen rivers overflowed their banks, it made little sense to build roads that would be washed away. Rivers and canals also provided natural defenses against invaders. In the central plains, and especially in Ayutthaya, master engineers diverted a river in order to turn Ayutthaya into a fortified island.

Later in Bangkok, engineers constructed a canal across a neck of land between the present site of Thammasat University and Wat Arun, thereby eliminating a long

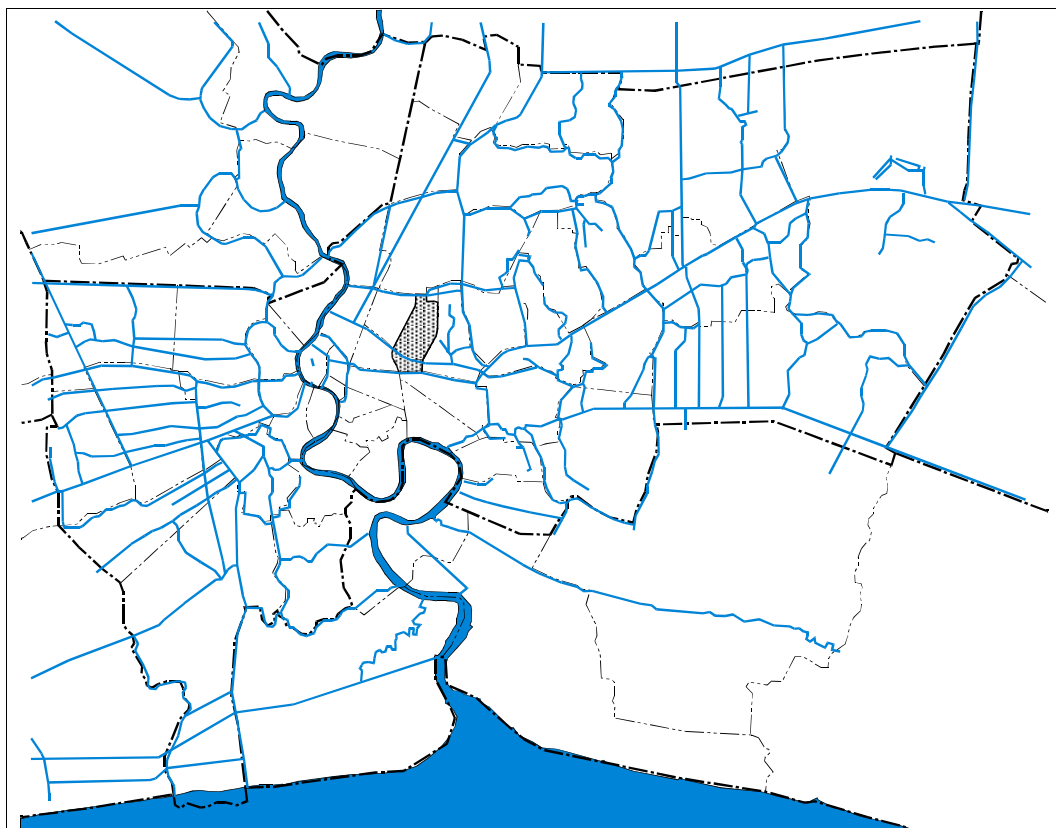
roundabout route to the mouth of the Chao Phraya River. When King Rama I established Bangkok, he had three concentric canals constructed, turning the royal city into an island. Other canals were built to connect these. In the 19th century, it was estimated that more than 100,000 boats plied Bangkok's canals.

The most extensive rural canal expansion came during the reign of King Chulalongkorn. In a few years, thousands of kilometers of canals crisscrossed central Thailand.

In the mid-20th century, Bangkok shifted from boats to cars. Canals were filled in to create roads, and the houses were built on solid ground. This has contributed to the modernization of Bangkok, but left evident problems: congested and noisy streets in the hot season, flooded streets in the monsoon season.

One of the most scenic khlongs in the eastern section of Bangkok is Khlong Saen Saep, dug to carry troops to Chachoengsao to fight invaders from the east, and to join the Bangpakong River for a journey into the sea.

**Figure 1.3: The Chao Phraya River and Major Canals in BMA**



Source: Open Space Plan, MBA General Plan 1999

## 1.3 SOCIO-ECONOMY

### 1.3.1 Demography

#### (1) Population

The total population in Thailand was 61,661,701 in 1999. The population in BMA and BMR in the same year was 5,662,499 and 9,308,924 respectively. The share of BMR represents 10.8% of the country.

The actual number of residents, however, might have been well beyond the figures presented above, since a large number of migrant workers as well as unregistered population seem to reside in BMA. According to the results of the latest survey conducted by the Department of Town and Country Planning (DTCP), the population of BMA in 2000 was estimated at 8,023,100 and that of BMR 11,357,000, which is nearly 40% over the registration record. Using figures in this estimate, the share of BMR in Thailand accounts for 18.2%. The latest results of both registered and estimated population are summarized in the following table:

Table 1.1: Latest Population in BMR

Region	Registered Population Y1999	Estimated Population Y2000
Whole Kingdom	61,661,701	62,320,000
BMR	9,308,924	11,357,000
BMA	5,662,499	8,023,100
Vicinity of Bangkok	3,646,425	3,333,900
Samut Prakan	977,388	969,300
Nonthaburi	839,029	695,100
Phatum Thani	633,994	583,100
Nakhon Pathom	774,276	715,500
Samut Sakhon	421,738	370,900
<b>BMR/Whole Kingdom</b>	<b>15.1%</b>	<b>18.2%</b>

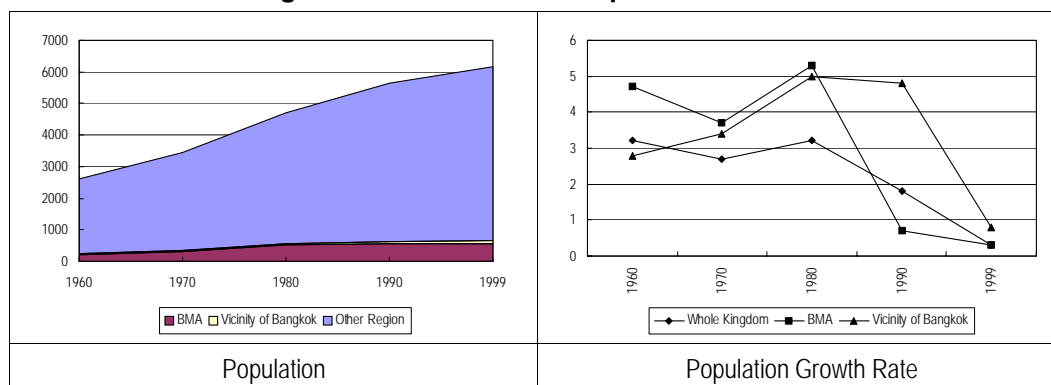
Source: 1 URMAL estimates

2 "Non Permanent Resident Analysis in BMA", DTCP survey in 2000

The population is in a trend of moderate increase in the country as well as in both BMA and BMR. The annual population growth rate in Thailand was 0.3% in 1999, a very low level compared to other Southeast Asian countries. The growth rates were a high 3% throughout the decades of the 1960s to the 1980s, but dramatically decreased to less than 2% in the 1990s, owing largely to population control programs, many of which were initiated under the Second National Socio-Economic Development Plan. The growth rates in BMA have also decreased

in recent years after experiencing strong population centralization during the 1970s and 1980s. In the neighboring provinces of BMA, or in the vicinity of Bangkok, however, the growth rates remained high until 1990, which is for a greater period than those of the country and BMA, reflecting the continued inflow of population from other parts of the country to the outskirts of Bangkok.

Figure 1.4: Past Trend of Population Growth



Note: Figures in 1947, 1960, 1970 from Population Census, others from registration record

Source: 1. Department of Local Administration, Ministry of Interior

2. 1947, 1960 Population Census, 1970 Population and Housing Census, National Statistical Office, Office of the Prime Minister

## (2) Household

According to the Household Socio-Economic Survey conducted in 1998, the household size of Greater Bangkok was 3.4 persons per household, which is clearly smaller than other rural regions. The major results of the survey are summarized in the table below:

Table 1.2: Household Size by Region

(Unit: Persons/Household)

Region	1988	1990	1992	1994	1996	1998
Whole Kingdom	4.0	4.1	3.9	3.8	3.7	3.7
Greater Bangkok <sup>1)</sup>	3.5	3.6	3.4	3.3	3.2	3.4
Central Region <sup>2)</sup>	3.9	4.0	3.8	3.7	3.6	3.6
Northern Region	3.7	3.8	3.7	3.5	3.4	3.5
Northeastern Region	4.5	4.5	4.3	4.1	4.0	4.1
Southern Region	4.1	4.4	4.1	4.1	3.9	4.0

Note: 1) Including BMA, Nonthaburi, Pathum Thani, and Samut Prakan.

2) Excluding Greater Bangkok.

Source: The Household Socio-economic Survey, National Statistical Office, Office of the Prime Minister.

According to the Population and Housing Census (insert reference here), the average household size of BMA has rapidly reduced to 4.3 persons per household



in 1990, from 6.1 in 1970. The number of households with more than six persons has dramatically decreased, while that of households with two to four members showed a steady increase in the same period, accounting for 53% of the total number in BMA. These figures indicate changes to the urbanized pattern of settlement from the rural ones.

**Table 1.3: Number and Size of Household in BMA**

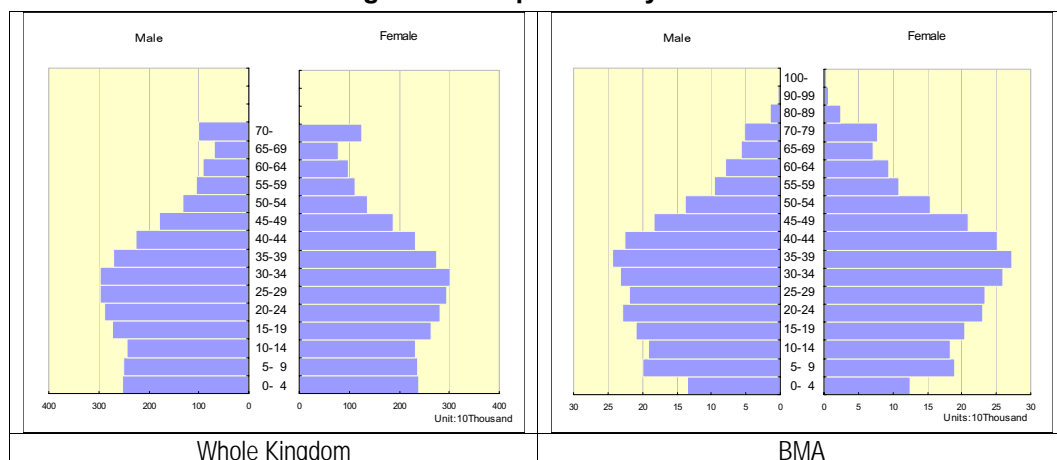
Region	1970	1980	1990
Number of HH	341,579	902,940	1,333,686
Population	2,100,591	4,582,456	5,719,958
Persons per HH	6.1	5.1	4.3
1	5%	6%	8%
2	8%	11%	16%
3	10%	14%	18%
4	12%	16%	20%
5	12%	15%	15%
6 & Over	53%	37%	24%

Source: Population and Housing Census.

### (3) Age Group Structure

Comparing nationally, the age group structure of BMA is characterized by a large proportion of economically active population (15-59 years of age, 71%) and very small share of infant population (0-14 years of age, 20%), especially those under four years old. The following table and figure show the comparison of age group structure between the country and BMA.

**Figure 1.5: Population Pyramid**



Source: Department of Local Administration, Ministry of Interior

Table 1.4: Population by Age Group

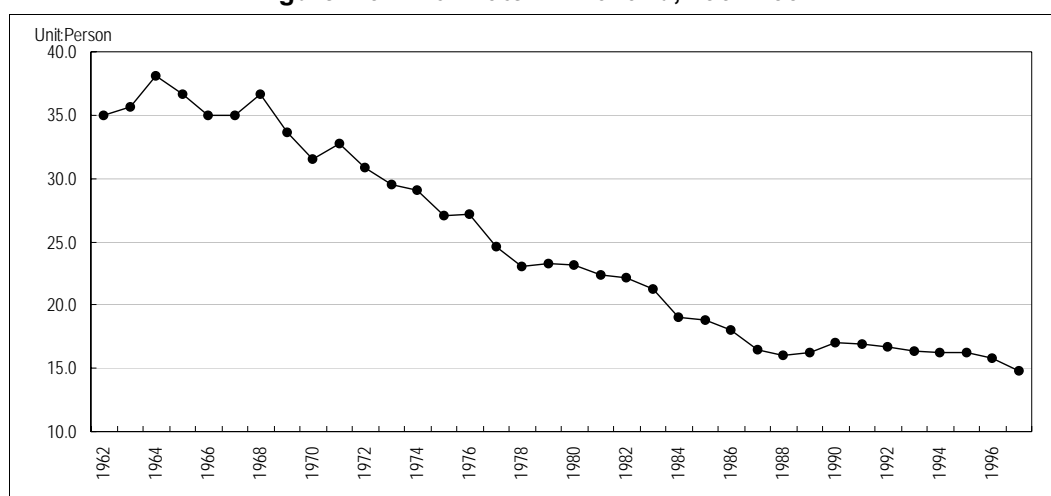
(10,000 persons)

Age	Whole Kingdom			BMA		
	Total	Male	Female	Total	Male	Female
-14	1454	745	709	103	53	50
	24%	24%	23%	20%	21%	18%
15-59	4148	2064	2084	370	178	193
	67%	67%	67%	71%	71%	71%
60-	563	261	302	48	21	27
	9%	8%	10%	9%	8%	10%
Total	6164	3069	3095	521	251	270
	100%	100%	100%	100%	100%	100%

Source: Thailand Population Projection, 1999-2016

This can be attributed to a large-scale inflow of economically active population to Bangkok from other regions as well as a nation-wide change of life style among the urban dwellers who tend to have a smaller number of children in their respective families. In fact, the birth rate in Thailand shows a sharp decrease in the past 20 years, as depicted in the following figure.

Figure 1.6: Birth Rate in Thailand, 1962-1997



Note: Birth rate = number of births per 1,000 population

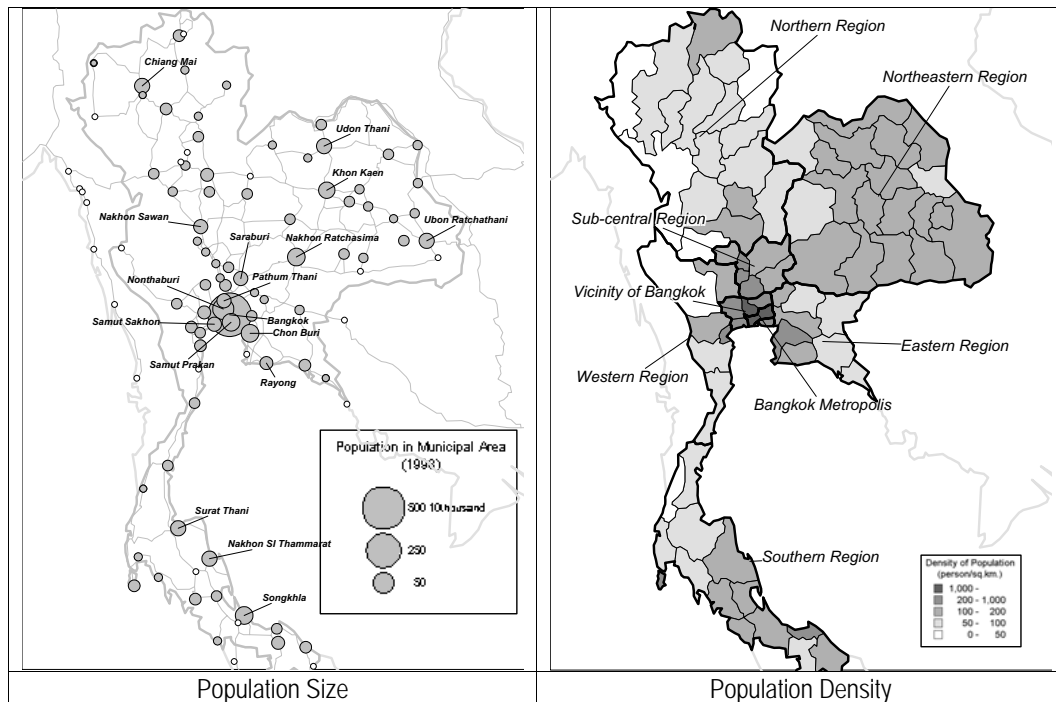
Source: Public Health Statistics A.D.1997, Division of Health Statistics, Bureau of Health Policy and Plan, Office of the Permanent secretary, Ministry of Public Health

#### (4) Population Distribution

The population distribution in Thailand is characterized by strong concentration of the urban population in the capital city of Bangkok. According to the latest statistics, the urban population (or dwellers of *thetsabans*) was 11,409,488 in 1998, or 18.5% of the total population. Among the total urban population, the share of

BMA accounted for 50% and BMR 60%. As indicated above, there are no significant population and/or economic centers in the country that can compete with Bangkok. Only 16 provincial cities have a population of more than 200,000.

Figure 1.7: Population Distribution Pattern in Thailand



Source: Department of Local Administration, Ministry of Interior

The population density of BMA reached 3,618 persons/km<sup>2</sup>, indicating a large proportion of built-up areas in the territory, followed by the suburbs of Bangkok (588.8 persons/km<sup>2</sup>). These are rather low compared to major Asian capital cities as shown in Table 1.7.

**Table 1.5: Population Distribution by Region**

Changwat	Total Population (Persons)	Urban Population (Persons)	Urban population Ratio (%)	Area (km <sup>2</sup> )	Population Density (Person/km <sup>2</sup> )
Whole Kingdom	61,661,701	11,409,488	18.5%	513,115	120.17
	100.0%	100.0%		100.0%	
Bangkok Metropolis	5,662,499	5,647,799	99.7%	1,568	3,618.21
	9.2%	49.5%		0.3%	
Vicinity of Bangkok	3,646,425	1,141,091	31.3%	6,193	588.80
	5.9%	10.0%		1.2%	
Sub-central Region	2,963,535	332,410	11.2%	16,593	178.60
	4.8%	2.9%		3.2%	
Other Region	49,389,242	4,288,188	8.7%	488,763	101.05
	80.1%	37.6%		95.3%	

Source: Department of Local Administration, Ministry of Interior.

**Table 1.6: Ranking of Provincial Cities with more than 100,000 Urban Population**

Unit: Thousand Persons

Order	Provincial City	1990	1998	Growth Rate
1	Bangkok	5,547	5,648	2%
2	Nonthaburi	259	519	101%
3	Songkhla	240	271	13%
4	Samut Prakan	82	270	228%
5	Chon Buri	188	253	34%
6	Nakhon Ratchasima	273	244	-11%
7	Khon Kaen	218	212	-3%
8	Chiang Mai	165	172	4%
9	Nakhon Si Thammarat	109	158	44%
10	Udon Thani	80	156	96%
11	Surat Thani	83	155	86%
12	Ubon Ratchathani	142	154	9%
13	Pathum Thani	16	146	797%
14	Saraburi	131	141	8%
15	Nakhon Sawan	157	134	-15%
16	Samut Sakhon	70	114	63%
17	Rayong	62	104	68%

Note: 1. Sorted by the size of population  
2. Population of *thetsabans* (excluding *non-thetsaban* population of each province).

Source: Department of Local Administration, Ministry of Interior

**Table 1.7: Population Density in Major Cities in Asia**

City	Country/ Region	Population (Thousand)		Area (km <sup>2</sup> )		Population Density (Person /km <sup>2</sup> )	Source
Seoul	South Korea	10,321	(1999)	606	(1998)	17,046	"Seoul Statistical Yearbook" Seoul Metropolitan Government
Jakarta	Indonesia	9,374*	(1997)	662*	(1997)	14,117	1997 Population Projection Statistics Indonesia
Tokyo	Japan	7,920	(2000)	621	(2000)	12,749	"Tokyo Statistical Yearbook" Tokyo Metropolis
Taipei	Taiwan	2,641	(1999)	272*	(1998)	9,710	Social Indicator Statistics National Statistics of Taiwan
Hong Kong	China	6,866	(2000)	1,098*	(1999)	6,253	Hong Kong in Figures Census and Statistics Department
Singapore	Singapore	4,018*	(2000)	660*	(1999)	6,087	Population Census 2000 Singapore Department of Statistics
Kuala Lumpur	Malaysia	1,298*	(2000)	244*	(1999)	5,318	Population and Housing Census 2000 "Yearbook of Statistics Malaysia, 1997" Department of statistics Malaysia
<b>Bangkok</b>	<b>Thailand</b>	<b>5,662</b>	<b>(1999)</b>	<b>1,568</b>	<b>(1999)</b>	<b>3,618</b>	<b>"Statistical Yearbook Thailand" Department of Local ministration</b>
Shanghai	China	13,066	(1998)	6,341*	(1998)	2,061	"Statistical Yearbook Shanghai 1999" Shanghai Statistical Bureau
Beijing	China	10,915	(1998)	16,808*	(1998)	649	"Statistical Yearbook Beijing 1999" Beijing Statistical Bureau

Source: The asterisk \*for Area is quoted from "The Major Cities in the World, 2000" by Tokyo Metropolitan Government.

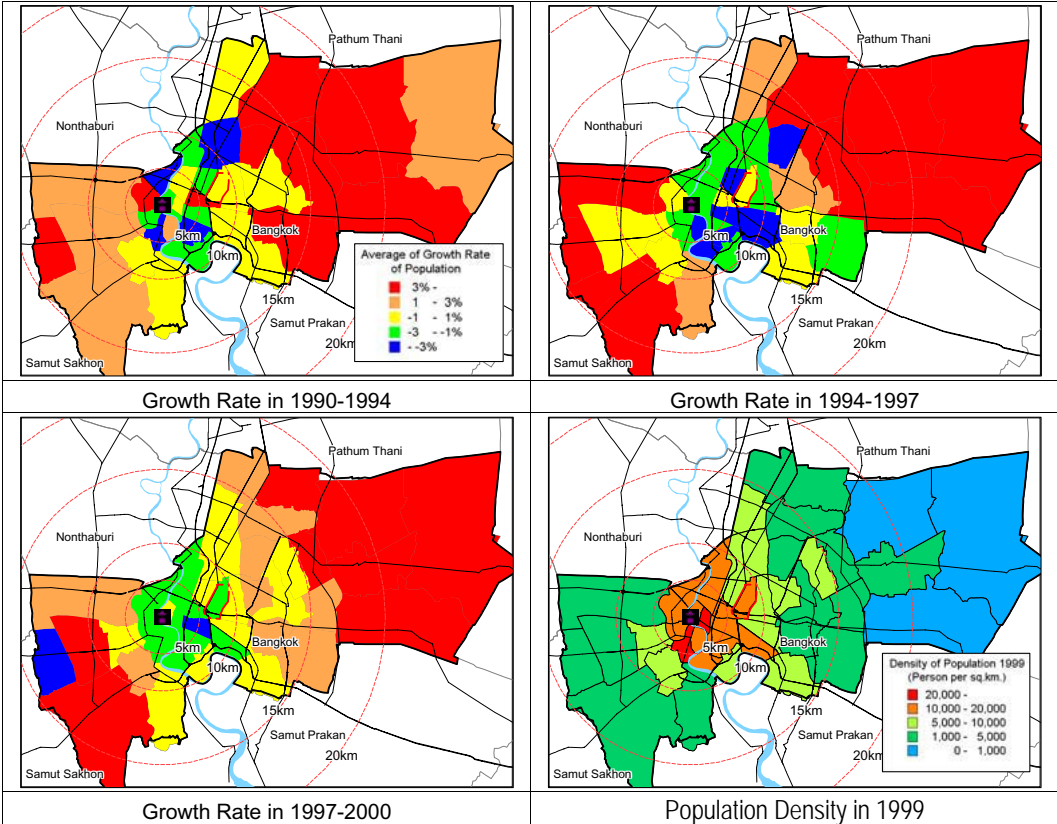
Note: The asterisk for Population stands for population in Census.

Within BMA, there is a densely built-up area (10,000 persons/km<sup>2</sup>) within a 10 km radius from the center of the city (Royal Park). The density gradually decreases from the city center: 5,000 persons/km<sup>2</sup> in the range of 10-15 km, and 1,000 persons/km<sup>2</sup> outside the radius of 20 km. The extent of built-up area is limited within the range of 15 km, and many underdeveloped lands are observed outside this circle.

Recent population growth has taken place in the suburbs of Bangkok. Among others, Samut Prakan and Pathum Thani stand out. Development of expressways toward the north from Bangkok prompted large housing and commercial complex development in the former, and expansion of commercial and housing built-up along the expressway toward the Eastern Seaboard has taken place in the latter.

The areas at a radius of 16-20 km from the city center have experienced rapid population growth, while the population within 10 km has decreased. This tendency became prominent during the period of economic boom. The population growth rates in the 15-20 km circle range marked more than 11% of annual growth in the years of 1994 to 1997. The rapid growth in the suburbs has been moderated after the economic crisis, but the increasing trend still continues.

Figure 1.8: Population Growth Rates and Density by District in BMA



Note: Growth Rates based on the Registration Record  
Source: Department of Local Administration, Ministry of Interior

## 1.3.2 Macroeconomy

### (1) Overview of Thai Economy

#### 1) Economic Growth

GDP growth rates in Thailand were in a healthy range of 5-9% before the currency crisis in 1997, however, it down-turned to minus growth in 1997 and 1998. The growth rate recovered to 4.2% in 1999 and a similar growth of 4.5% is expected in 2000 as well. The economic stagnation induced by the currency crisis, therefore, seems to have been overcome as far as GDP growth indexes are concerned.

**Table 1.8: Economic Growth Indexes**

	1994	95	96	97	98P	99P
GDP (gross, M. Baht)	2,695,413	2,935,341	3,109,320	3,057,009	2,746,128	2,860,956
Rate of growth (%)	9.0	8.9	5.9	-1.7	-10.2	4.2
GDP (net, M. Baht)	3,634,496	4,185,629	4,608,491	4,727,318	4,635,925	4,702,899
Rate of growth (%)	14.6	15.2	10.1	2.6	-1.9	1.4
Per capita GDP (Baht)	61,900	70,610	77,080	78,181	75,823	76,390
Equivalent US\$	2,461	2,834	3,041	2,493	1,833	2,019
Population (year center, 10 thousand)	5,910	5,946	6,012	6,082	6,147	6,156
Rate of growth (%)	1.30	0.62	1.10	1.16	1.07	0.15
Foreign exchange rate (US\$/Baht)	25.150	24.915	25.343	31.364	41.359	37.844

Note: P = prompt statistics

Source: GDPs = NESDB statistics

Population: Annual report of Ministry of Interior

Exchange rate: IMF, IFS

#### 2) Price

Consumer prices in Thailand are currently stable and, in Bangkok, those of foods are slightly dropping. This may be due to the recovery of the currency value in recent months from the lower value during the crisis. A weak foreign exchange rate pushed up the prices of imported goods but current appreciation of the baht is acting favorably to push down consumer prices.



**Table 1.9: Consumer Price Indexes**

(1994=100)

	1995	96	97	98	99	March 2000
<b>Overall</b>	<b>105.8</b>	<b>112.0</b>	<b>118.2</b>	<b>127.8</b>	<b>128.2</b>	<b>129.9</b>
Rate of rise, %	5.8	5.9	5.5	8.1	0.3	1.1
Foods	108.1	117.7	125.9	137.9	136.7	135.8
Rate of rise, %	8.1	8.9	7.0	9.5	-0.9	-1.4
Non-foods	104.3	108.0	113.0	121.4	122.4	125.6
Rate of rise, %	4.3	3.7	4.6	7.3	1.0	2.6
Clothes	104.8	108.7	113.1	121.4	122.8	123.6
Rate of rise, %	4.8	3.8	4.0	7.3	1.2	0.0
Housing	104.8	108.2	111.6	117.8	117.9	119.3
Rate of rise, %	4.8	3.3	3.1	5.6	0.1	0.1
Health care	103.6	105.8	109.1	118.4	122.1	124.1
Rate of rise, %	3.6	2.1	3.1	8.5	3.1	1.6
Transportation	101.3	102.9	107.7	116.0	117.4	125.8
Rate of rise, %	1.3	1.6	4.7	7.7	1.2	9.5
<b>Overall Bangkok</b>	<b>105.7</b>	<b>111.9</b>	<b>117.7</b>	<b>126.9</b>	<b>127.4</b>	<b>129.2</b>
Rate of rise, %	5.7	5.8	5.2	7.8	0.4	1.2
Foods	107.9	117.6	124.6	135.8	135.2	134.7
Rate of rise, %	7.9	9.0	6.0	9.0	-0.4	-0.9
Non-foods	104.2	107.8	112.8	120.8	122.0	125.0
Rate of rise, %	4.2	3.4	4.6	7.1	1.0	2.5

Source: Ministry of Interior

### 3) *Balance of Payment*

In the balance of payments, export has been sluggish in recent years since 1996 and the currency crisis occurred in May 1997 by selling pressure on the baht by foreign speculators blaming enlarged deficit in the current account and collapse of the mini bubble economy, as represented by real estate industry.

The government in July the same year, revised the exchange policy from a currency basket system to a controlled float system, and in August executed the economic restructuring measures recommended by the IMF in exchange for receiving a relief loan.

Consequently, the balance of payments improved and the current account also turned into the black as early as 1998 and has remained there. The deficit of capital and financial account since 1997 has also been covered by the surplus, which made the overall balance of payments in the black.

**Table 1.10: Balance of Payment**

(Unit: Million Bahts)

	1994	1995	1996	1997P	1998P	1999P
1 Trade balance	- 226,782	- 373,796	- 417,647	- 84,850	502,983	337,371
a. Exports	1,118,049	1,381,660	1,378,902	1,789,695	2,180,847	2,149,798
b. Imports	1,344,831	1,755,456	1,796,549	1,874,545	1,677,864	1,812,427
2 Invisible trade	38,712	76,643	111,998	133,833	218,430	185,544
3 Current balance	- 203,153	- 337,641	- 372,159	- 40,307	592,083	426,601
4 Capital in movement	305,851	545,121	493,530	- 297,861	- 409,304	- 230,695
5 Errors	2,129	- 27,950	- 66,763	38,958	- 125,156	- 23,211
6 Overall balance	104,827	179,530	54,608	- 299,210	57,623	172,695
Foreign exchange reserves (Million US\$)	30,279	37,027	38,725	26,968	29,536	34,781

Source: Bank of Thailand

## **(2) Macroeconomic Structure in BMA**

### **1) Employment**

The employment structure in BMA is characterized by large share of service (34%), manufacturing (26%), and commercial (21%) industries, as against a smaller share of agriculture (3%), contrasting to that of the whole country according to the Population and Housing Census (1990).

Tertiary industry such as commerce and services occupy a larger portion than secondary industry. Commerce (21%) in particular is outstanding, followed by hotels and restaurants at 6%. Combined, these two industries, almost equal the number employed in the manufacturing segment..

Numbers migrating from rural areas who have come to be engaged in self employed commodity trade and food shops in the city are assumed to be considerable. This increase could be attributed to the increased demand for food and daily commodities by the large inflow of low-income people.

**Table 1.11: Employed Persons by Industry in BMA (1990)**

(Persons, %)

Industry	Bangkok Metropolis		Whole kingdom
	Labors	Composition	
Agriculture, forestry, hunting and fishing	75,442	3%	64%
Mining and quarrying	2,151	0%	0%
Manufacturing	765,026	26%	10%
Construction, repair and demolition	203,504	7%	3%
Electricity, gas, water and sanitary services	30,242	1%	0%
Commerce	614,373	21%	10%
Transport, storage and communication	200,451	7%	2%
Services	1,023,170	34%	10%
Activities not adequately described	52,777	2%	0%
Total	2,967,136	100%	100%

Source: 1 Bangkok: 1990 Population and Housing Census

2 Whole Kingdom: 1990 Labor Force Survey

3 National Statistical Office, Office of the Prime Minister

## **2) GPP (Gross Provincial Product) Structure**

In the constitution of GPP in BMA, primary industry accounts for merely 1%, while tertiary industry accounts for 64% followed by secondary industry 35%. The GPP had shown a significant drop from 2% growth in 1997 to negative 7% growth in 1998. This is especially true in the banking, insurance, real estate, and construction sectors.

The real estate and construction sectors, which have experienced a heavy inflow of foreign capital, were directly affected by the financial restraint policy after the currency crisis.

**Table 1.12: Gross Provincial Product at Current Market Prices (Bangkok Metropolis)**

(Million Bahts, %)

	1992	1993	1994	1995	1996	1997	1998p	Com Posi Tion
Agriculture	6,707	7,689	8,806	9,494	9,824	10,242	10,152	1%
Mining and quarrying	0	0	0	0	0	0	0	0%
Manufacturing	352,733	400,521	418,399	472,095	510,249	532,346	529,559	31%
Construction	76,237	97,424	100,930	94,529	105,167	104,297	76,151	4%
Electricity and water supply	17,380	20,426	21,801	24,993	26,806	28,446	29,178	2%
Transportation and communication	131,610	152,711	170,724	188,350	209,189	221,052	227,131	13%
Wholesale and retail trade	232,196	260,457	292,078	325,441	346,060	361,357	337,119	20%
Banking, insurance and real estate	121,299	152,156	187,406	206,813	222,487	192,507	117,800	7%
Ownership of dwellings	17,980	19,092	21,149	25,962	30,920	33,545	34,494	2%
Public administration and defence	26,075	29,199	32,365	40,757	45,760	51,142	54,474	3%
Services	166,471	190,863	219,003	254,221	289,420	296,641	284,378	17%
G P P.	1,148,688	1,330,538	1,472,661	1,642,654	1,795,882	1,831,574	1,700,436	100%
Per capita GPP.(Baht)	176,857	200,503	217,207	237,412	254,338	254,244	231,383	-
Population(1,000 persons)	6,495	6,636	6,780	6,919	7,061	7,204	7,349	-

Source: NESDB

**Table 1.13: Gross Provincial Product in BMA at Current Market Prices**

	1993	1994	1995	1996	1997	1998p
Agriculture	15%	15%	8%	3%	4%	-1%
Mining and quarrying	-	-	-	-	-	-
Manufacturing	14%	4%	13%	8%	4%	-1%
Construction	28%	4%	-6%	11%	-1%	-27%
Electricity and water supply	18%	7%	15%	7%	6%	3%
Transportation and communication	16%	12%	10%	11%	6%	3%
Wholesale and retail trade	12%	12%	11%	6%	4%	-7%
Banking, insurance and real estate	25%	23%	10%	8%	-13%	-39%
Ownership of dwellings	6%	11%	23%	19%	8%	3%
Public administration and defense	12%	11%	26%	12%	12%	7%
Services	15%	15%	16%	14%	2%	-4%
G P P.	16%	11%	12%	9%	2%	-7%
Per capita GPP.(Baht)	13%	8%	9%	7%	0%	-9%
Population(1,000 persons)	2%	2%	2%	2%	2%	2%

Source: NESDB

Looking at per capita GDP and GPP, the gap between those of the whole country and BMA has gradually been reduced, but a significant difference is still observed leaning to BMA.

**Table 1.14: Gross Domestic Product in Thailand, BMR, and BMA**

(Million Baht)

	1992	1993	1994	1995	1996	1997	1998p
<b>Whole Kingdom</b>							
G D P.	2,830,916	3,170,258	3,634,498	4,185,632	4,608,490	4,727,307	4,635,926
Population(1,000 persons)	57,294	58,010	58,713	59,401	60,003	60,602	61,201
Per capita GDP.(Baht)	49,410	54,650	61,903	70,464	76,804	78,006	75,749
<b>BMR</b>							
G R P.	1,476,237	1,695,196	1,907,844	2,160,672	2,352,470	2,389,715	2,244,388
	52.15%	53.47%	52.49%	51.62%	51.05%	50.55%	48.41%
Population(1,000 persons)	9,511	9,743	9,973	10,201	10,429	10,660	10,894
	16.60%	16.80%	16.99%	17.17%	17.38%	17.59%	17.80%
Per capita GRP.(Baht)	155,214	173,991	191,301	211,810	225,570	224,176	206,021
	314.13%	318.37%	309.03%	300.59%	293.70%	287.38%	271.98%
<b>BMA</b>							
G P P.	1,148,688	1,330,538	1,472,661	1,642,654	1,795,882	1,831,574	1,700,436
	40.58%	41.97%	40.52%	39.25%	38.97%	38.74%	36.68%
Population(1,000 persons)	6,495	6,636	6,780	6,919	7,061	7,204	7,349
	11.34%	11.44%	11.55%	11.65%	11.77%	11.89%	12.01%
Per capita GPP.(Baht)	176,857	200,503	217,207	237,412	254,338	254,244	231,383
	357.94%	366.89%	350.88%	336.93%	331.15%	325.93%	305.46%

Source: NESDB

Note: Percentages indicate shares in the whole kingdom.