

CHAPTER 3

BACKGROUND OF THE STUDY AREA

3.1 General

Khon Kaen is a regional city and economic center of the Northeast Region. The municipality of Khon Kaen is situated at the center of the district of Khon Kaen. Its original land area of 13.5 km² was increase to 46 km² in 1972.

Table 3.1 Outline of Khon Kaen Municipality

Item	Description											
1) Area	46 km ²											
2) Climate	Tropical											
	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.
Temperature(°C)	24.1	26.1	28.8	31.5	30.2	28.9	28.6	28.5	28.2	26.2	24.5	23.2
Rain fall (mm)	2.9	22.9	43.8	48.2	190.7	132.9	192.6	213.4	192.5	166.9	5.1	13.6
3) Population												
- Population (1993)	146,805 persons											
- Population increase (1972-1993)	4.23 % per year											
- Population density (1993)	3,191 person/km ²											
- Household (1993)	17,929 households											
4) Economic Activities (Khon Kaen Province)												
- GPP at current market prices (1991)	33,642,672 thousand Baht											
- GPP/Capita (1991)	20,316 Baht/capita											
- GPP at constant 1988 prices (1991)	28,050,004 thousand Baht											
5) Municipal Agency	Khon Kaen Municipality											
6) Solid Waste												
- Collected amount (1994)	96 tons/day											
- Collection Service (1994)	Approximately 80% of whole household											

3.2 Population

According to the census of 1993, the registred population in Khon Kaen municipality is about 146,805 and number of households is about 17,929. The population density is 3,191 person/km². Annual growth rate before increase area of municipality from 1967 to 1972 was 4.18 percent and after from 1972 to 1993 was 4.23 percent. Forecast annual growth rate for the next 20 years is an average 4.09 percent, giving a municipal

population of in the year 2013. (Department of Town and Country Planning.)

3.3 Economic Activities

In 1991 the GPP of Khon Kaen is estimated at 33,642.67 million Baht, about 1.34 % of the Gross Domestic Product (GDP) of Thailand. GPP per capita is about 20,316 Baht The annual GPP growth rate was 10.38 % from 1981 to 1991. There are important business establishment in 1993 as follows :

1) Industrial

- 4 large factories (There are more 200 employees or registered capital over 50 million Bath)
- 226 medium factories (There are more 100 employees or registered capital between 10 and 50 million Bath)

2) Commercial

- 25 Hotels
- 25 Bank offices
- 6 Theaters
- 3 Large Store
- 7 Market
- 1019 Shops
- 9 Large Restaurants

3) Institutional

- 60 Schools
- 1 University
- 1 Collage
- 10 Hospitals (2080 beds)

3.4 Land Use

Land use of Khon Kaen Municipality can considered by Highway No.2 and No.12 that cross in the middle of area. The Municipality has the highest density commercial and residential in the southwest governmental in the northeast, educational institutions in the north west, and low density commercial and residential in the southwest.

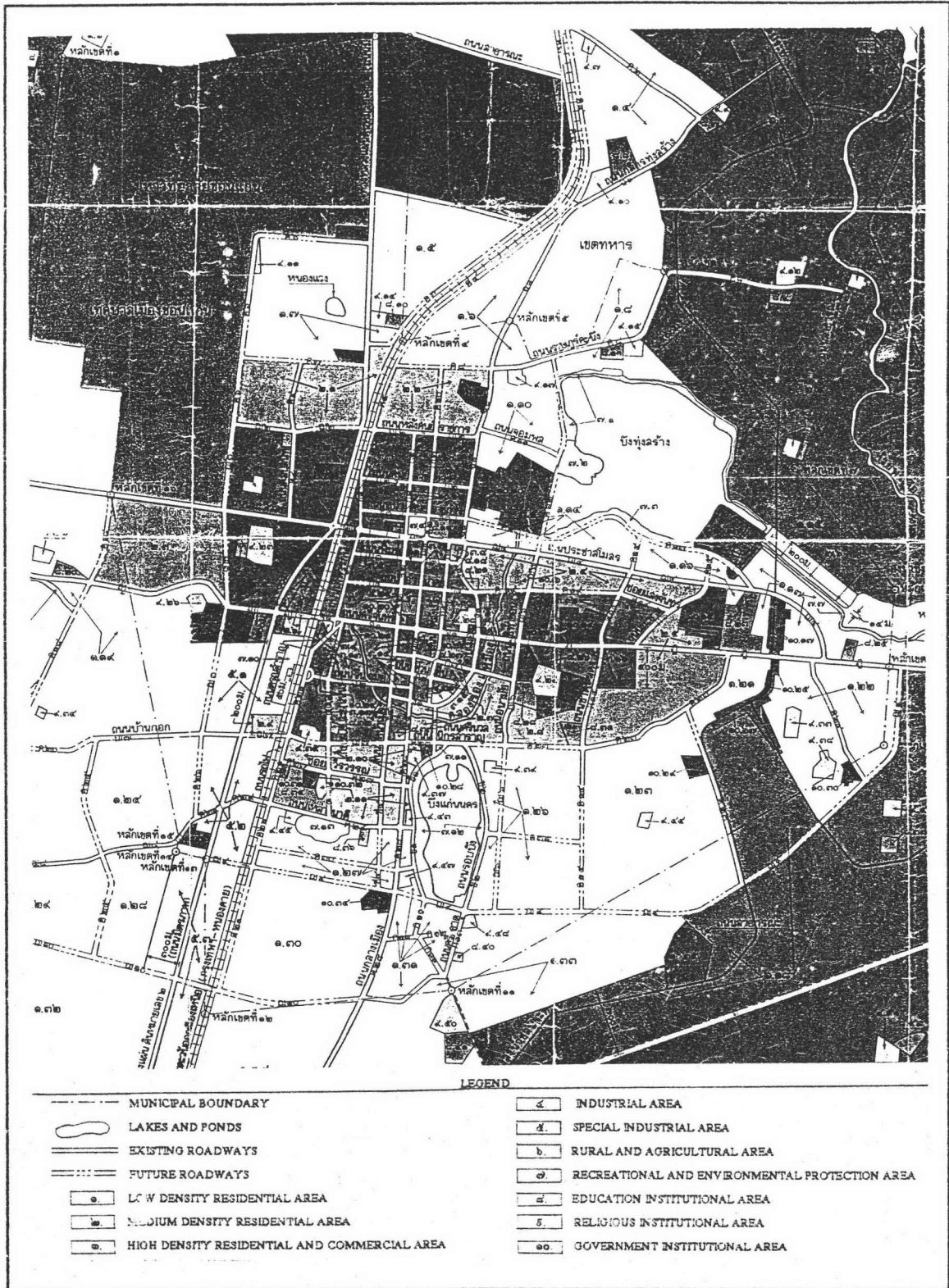


Figure 3.2 Plan of Land Use Regulation of Khon Kaen Municipality in 1989

3.5 Solid Waste Management

In Khon Kaen municipality solid waste collection and disposal is one of the principle responsibilities of the Sanitation and Environmental Division of the Municipality Office. It was estimated that 98 tons, or 80 percent of whole household can be collected daily (Jan-Aug., 1994)

In residential and commercial areas, solid waste normally taken by occupants of the premises to public containers placing along the streets. The contents of these containers are daily transferred into trucks. Stationary container, provided by local government placing along streets, are plastic bins. Numbers and types of vehicle which are used in refuse collection are 14 side loading trucks, 2 dumping trucks, 9 modified agricultural trucks, 1 dumping pickup, 2 semitailers, and 1 tractor. Waste from small capacity vehicles such as pickups and agricultural trucks is discharged into storage pit and then drawn into semitrailer.

For solid waste disposal, sanitary landfill is the only method that being applied in Khan Kaen municipality. The collected waste is disposed at the landfill site within the available area of 98 rai (about 0.16 square kilometers). This site is about 17 kilometers away from the municipality along Mitraphap Road. (High way No.2).



Figure 3.3 Street Solid Waste Container



Figure 3.4 Market Solid Waste Container

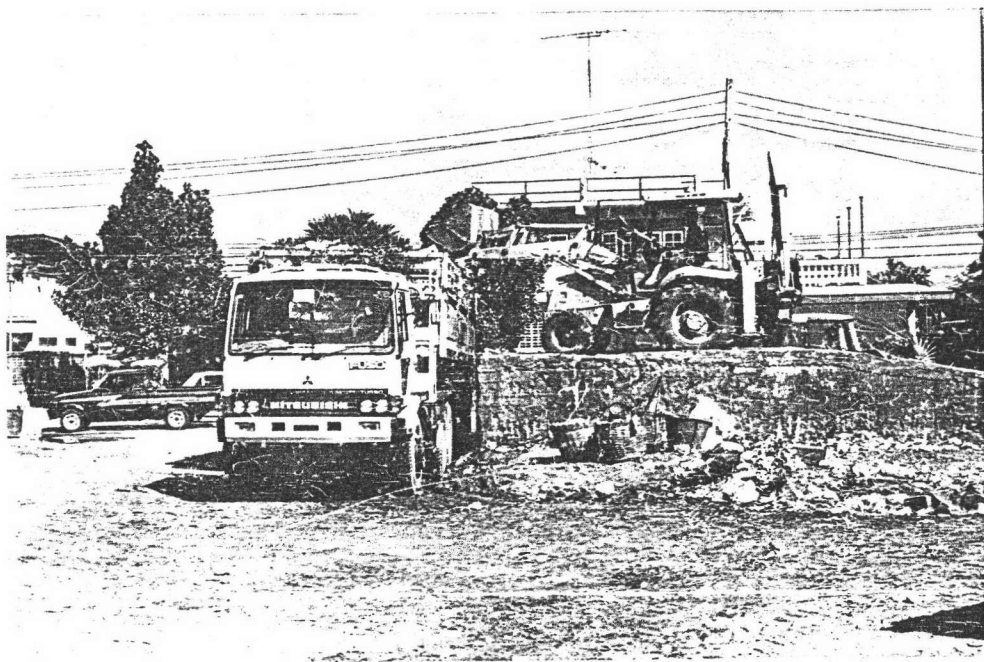


Figure 3.5 Transfer Station



Figure 3.6 Sanitary Land Fild Site



Figure 3.7 Weigh - Station

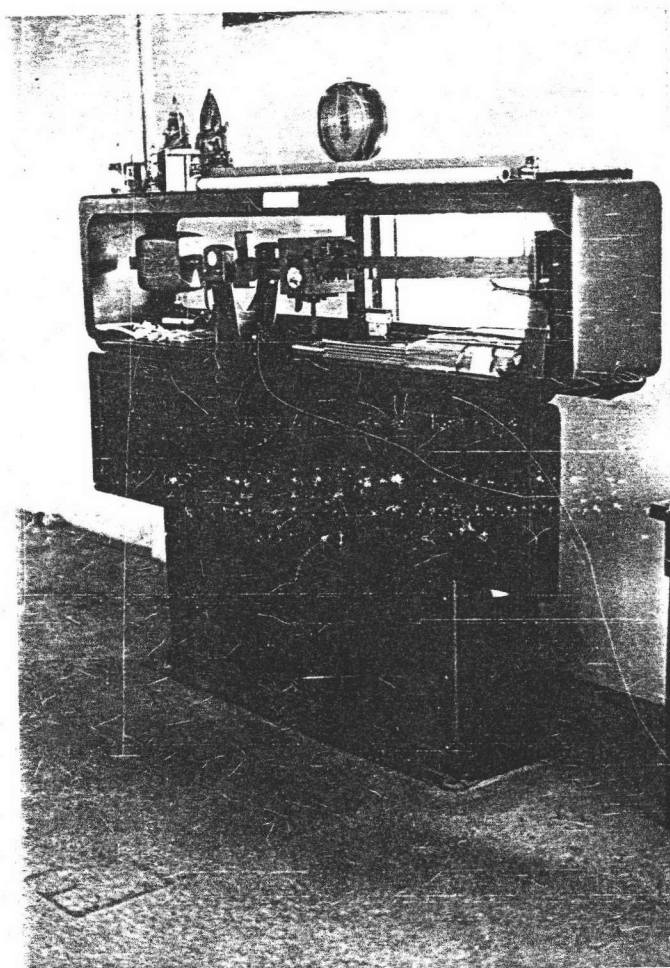


Figure 3.8 Weighing Machine