

## CHAPTER 2

## STUDY AREA AND AREA OF INFLUENCE

## Study Area

Route No. 3138, the Ban Khai - Ban Bung Feeder Road, is situated in the southeastern part of Thailand, as shown in Fig. 1. Apart from major centers of urban population on or near the coast at places such as Chonburi, Rayong and Chantaburi, a deep water port at Sattahip, an oil refinery at Sri Racha, and resort developments at intervals along the coast, southeastern Thailand is entirely agricultural. The principal crops are cassava and sugar cane. Other crops grown in the area are rice, rubber, peanuts, and fruit. Much of the area is officially designated as forest reserve but, over the years, more and more forest has been removed and replaced by cassava or sugar cane plantations. The study area selected is the area that this route influences; that is, the boundaries are those established by the farmers in their ordinary use of the Ban Khai - Ban Bung Road in transporting farm inputs or goods and for business and personal travel. The criteria for establishing the boundaries of the area of influence are discussed in a subsequent section.

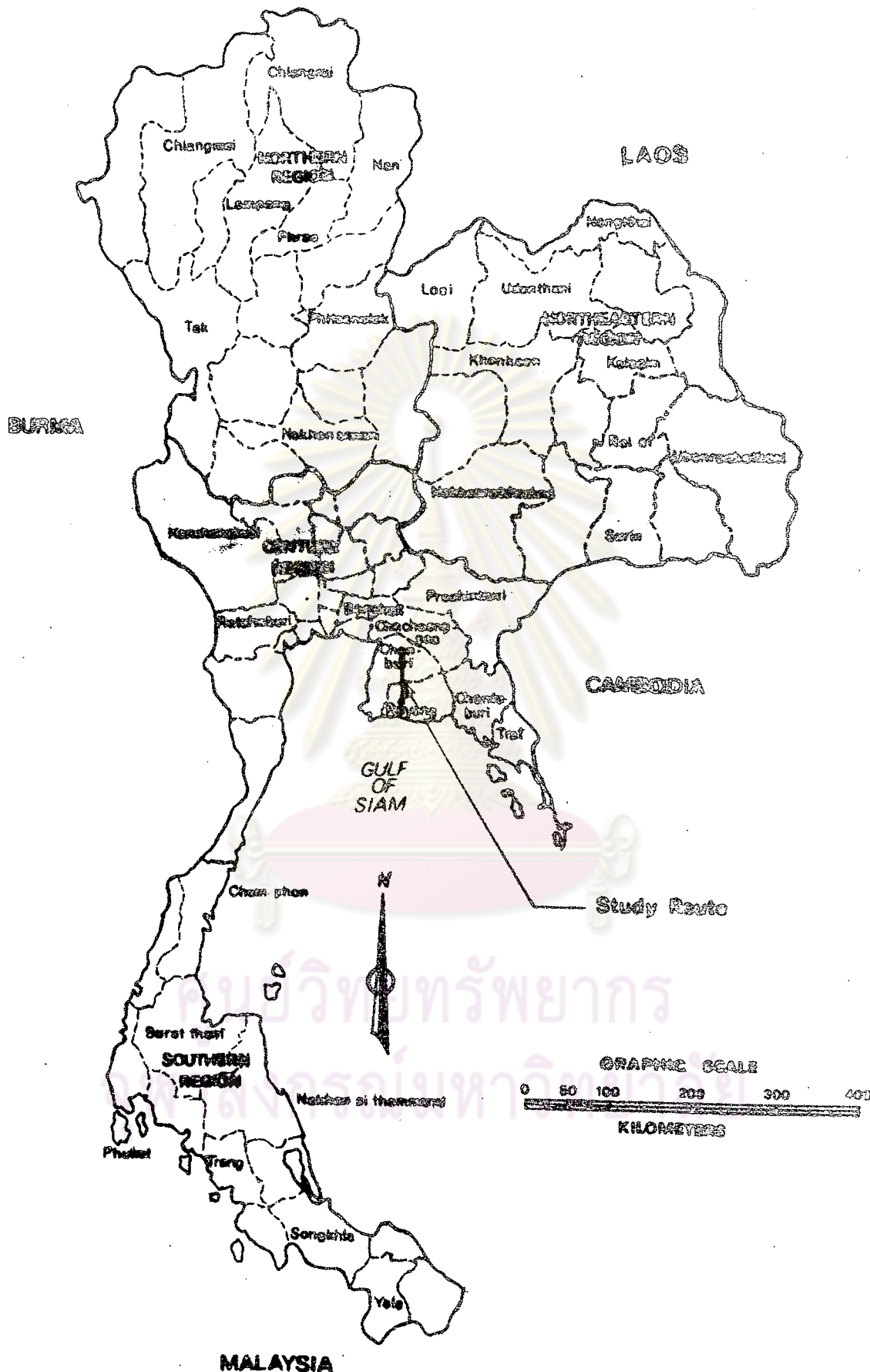


Fig. 1 MAP OF THAILAND

The Ban Khai - Ban Bung Feeder Road runs through two changwads and four amphoes\* as shown in Fig. 2. In Changwad Rayong, the area of influence comprises three sub-districts in Amphoe Ban Khai: Tambol Ban Khai, Tambol Bang But, and Tambol Nong Bua; and three sub-districts in King Amphoe\*\*Pluak Daeng: Tambol La Harn, Tambol Pluak Daeng, and Tambol Ta Sit. In Changwad Chonburi the area of influence is in only one sub-district of Amphoe Sri Racha: Tambol Nong Kharm.

The area chosen as the area of influence does not include all of the area in the tambols mentioned above. Some of the villages in these tambols were determined to be outside of the area of influence.

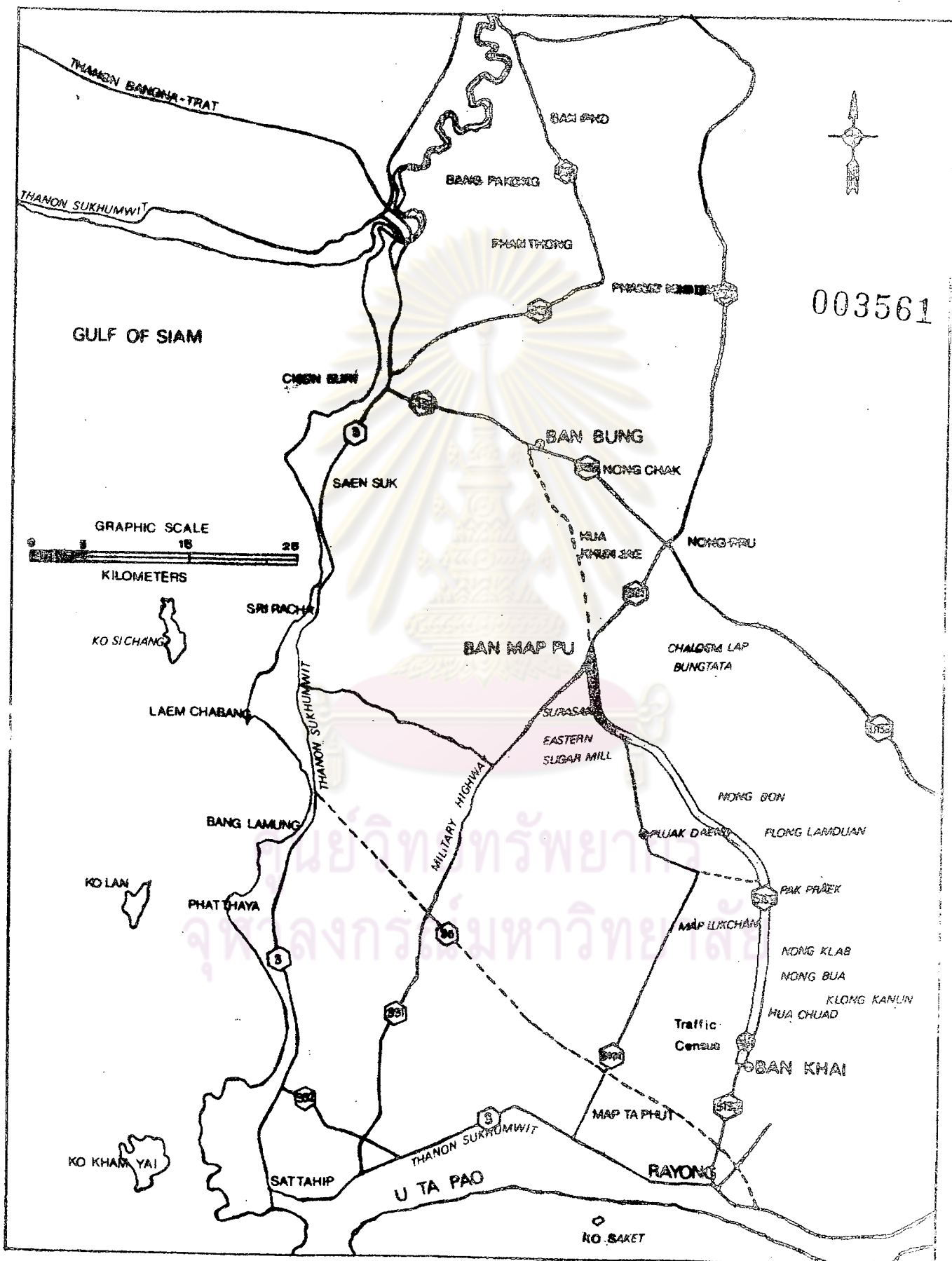
It is to be noted that Route No.3138 originates at Changwad Rayong (in the provincial capital) and passes through Amphoe Ban Khai, King Amphoe Pluak Daeng, and joins with the Military Highway, No.331, at Ban Map Pu in Amphoe Sri Racha; west of the Military Highway, the route runs to Amphoe Ban Bung. In the present research, the area between Rayong and Ban Khai, and the area beyond Route No.331 to Ban Bung, were not included in the study area for reasons which will subsequently be discussed.

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\*Amphoe is a district, roughly equivalent to a county.

\*\*King amphoe is the first step in separating a portion of an amphoe in the administrative transition of establishing a new amphoe.

Fig. 2 — Map Showing the Study Route





## Selecting the Area of Influence

The boundaries of the area of influence are affected by many factors that must be taken into account in delineating the area affected by a highway. Natural barriers -- like mountains, rivers, and large bodies of water -- are always thought of as boundary lines of the influenced area. Other roadways near the study area have significance for the farmers who can choose which route they prefer. If there were many routes through a study area, the farmers would be able to use any of them for their routine work. The distance from the farm house to the study roadway, and the condition of the roadway, its surface, and its geometric features, are also important factors that affect the area of influence. A well designed road in good condition will benefit its users while a bad road can cause difficulty in travelling and transporting goods.

There are many ways of evaluating the area of influence of a study roadway. A rather rough method is to define an area, such as that within a 40-km band (20 km on each side of the road) as the area affected by the roadway. This criterion is not widely accepted because it is too arbitrary to be realistic. The influenced area depends on natural barriers, the presence of nearby routes, and land-use patterns. Where

there are two parallel roads, the boundary of the area of influence is sometimes taken as a line equi-distant from the two roadways. The hypothesis is that each user would choose the road which is closer to his farm or house in preference to the other route. The method used in the present study was to visit farmers in each village thought to be affected by the Ban Khai - Ban Bung feeder road. A detailed map was available for considering the affected area. From the map, the likely area of influence was defined and then confirmed by visiting the farmers in that area. Natural barriers and nearby roads were taken into account in defining the area. It was postulated that every household in each village followed the same pattern in using roadways. So, all of the households in a village that was determined to be affected by the feeder road were counted as affected households. The number of registered households in each village was obtained from the Kamnan's\* records, but the figure of non-registered households was not available. In the study area it was found from the Phu-yai ban\*\* that there were some households that did not have

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\*Kamnan is the chief administrative officer of a tambol; a tambol (a group of villages) is a political sub-unit of an amphoe.

\*\*Phu-yai ban is the head of a village.

registration cards. To cover all of the households in the study area it was necessary to know how many households were registered. This was a problem because the Phu-yai ban did not themselves know of all the non-registered households in their villages. However, they tried to obtain these figures and listed the names of the heads of the non-registered households.

#### Influenced Tambols in Amphoe Ban Khai

There are five tambols in Amphoe Ban Khai, but only four of these were likely to be influenced by the feeder road. The distribution by village is described in Table 1.

ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

Table 1 - Registered and Non-Registered Households in the Area of  
Influence in Amphoe Ban Khai

Village Name	Village No.	Number of Registered Households	Number of Non-Registered Households
<u>Tambol Ban Khai</u>			
Ban Klong Nam Ngoo	No. 2	124	0
<u>Tambol Nong La Lok</u>			
Ban Ta Sit	No. 7	47	0
Ban Wat Rai Nong Pru	No. 8	87	0
<u>Tambol Bang But</u>			
Ban Chark Ma Hard	No. 1	142	16
Ban Bang But	No. 2	286	0
Ban Nong Kla	No. 3	138	0
Ban Nong Pa Wa	No. 4	432	16
<u>Tambol Nong Bua</u>			
Ban Nong Sib Sew	No. 1	188	5
Ban Nong Pla Lai	No. 2	104	1
Ban Nong Klab	No. 3	294	15
Ban Nong Koh	No. 4	279	10
Ban Pa Wai	No. 5	128	2
Total	12	2,249	65



### Influenced Tambols in King Amphoe Pluak Daeng

Prior to the year 1971, there was no King Amphoe Pluak Daeng as the villages in this area were included in Amphoe Ban Khai. In 1971 King Amphoe Pluak Daeng was formed by separating the area from Amphoe Ban Khai to form the new administrative district. This King Amphoe was in the northern part of Amphoe Ban Khai, all of the area of which was thought to be in the area of influence of the study road. The influenced tambols, distributed by village and including the numbers of registered households and non-registered households, are shown in Table 2.



ศูนย์วิทยทรัพยากร  
จุฬาลงกรณ์มหาวิทยาลัย

Table 2 - Registered and Non-Registered Households of the Area of Influence in King Amphoe Pluak Daeng

Village Name	Village No.	Number of Registered Households	Number of Non-Registered Households
<u>Tambol La Harn</u>			
Ban Park Prack	No. 1	479	50
Ban Klong Nam Daeng	No. 2	161	NA.
Ban Bung Ta Ta	No. 3	272	NA.
Ban Nong Rai	No. 4	139	NA.
<u>Tambol Ta Sit</u>			
Ban Klam	No. 1	220	NA.
Ban Kao Kra Ta	No. 2	280	NA.
Ban Nong Kang Kao	No. 3	340	NA.
<u>Tambol Pluak Daeng</u>			
Ban Pluak Daeng	No. 1	498	1
Ban Marb Luk Chan	No. 2	215	3
Ban Nong Ma Pling	No. 3	229	9
Ban Mae Nam Khoo	No. 4	457	0
Ban Mae Nam Khoo Mai	No. 5	368	0
Ban La Weong Nai	No. 6	163	3
Ban Wang Ta Pin	No. 7	187	3
Ban Marb Teoy	No. 8	259	0
Total	15	4,267	69

NA. = Not available

## Influenced Tambols in Amphoe Sri Racha

A part of the Ban Khai - Ban Bung feeder road is situated in Amphoe Sri Racha of Changwad Rayong in which only one tambol (Tambol Nong Karm) was in the area of influence. Two villages in Tambol Nong Karm were selected as villages likely to be affected by the feeder road. The number of households in each tambol is shown in Table 3.

Table 3 - Registered and Non-Registered Households of the Area of Influence in Amphoe Sri Racha

Village Name	Village No.	Number of Registered Households	Number of Non-Registered Households
<u>Tambol Nong Karm</u>			
Ban Marb Eing	No. 5	476	NA.
Ban Khao Kan Song	No.10	112	25
Total	2	588	25

A summary of the numbers of villages and households in the area likely to be influenced by the Ban Khai-Ban Bung feeder road is shown in Table 4.

Table 4 - Summary of Number of Households Affected by the  
Ban Khai-Ban Bung Feeder Road

District	Number of Villages	Number of Registered Households	Number of Non-Registered Households
Amphoe Ban Khai	12	2,249	65
King Amphoe Pluak Daeng	15	4,267	69
Amphoe Sri-Racha	2	588	25
Total	29	7,104	159

It may appear surprising that Amphoe Ban Bung was not selected as being within the area of influence though it is a terminus of the feeder road. This question can be resolved from inspection of Fig. 2. From the map, it can be seen that there are various portions of the Ban Khai-Ban Bung feeder road which have differing road surface conditions. The portion between Ban Khai and the Eastern Sugar Mill at Ban Surasak is a laterite road which is in good condition during the dry season, and becomes bad in the wet season (Figs. 3 and 4; these two views were photographed in October 1976). The part



Fig. 3- Ban Khai-Ban Bung Feeder Road in Rainy Season



Fig. 4 - Impassable Wooden Bridge During Flooding Period

from the Eastern Sugar Mill to the Military Highway (Route No. 331, Sattahip-Chachoengsao Highway) at Ban Map Pu in Amphoe Sri Racha has a black-top surface that may have been built by the proprietors of the sugar mill. The condition of this segment is better than that of the southern part and can serve traffic during the entire year. In planning the farm interviews which were to relate agriculture to transport requirements, it became apparent that the portion of the Ban Khai-Ban Bung feeder road situated west of the Military Highway would be of little interest. This, coupled with the condition of the feeder road southeasterly from the Military Highway, indicated that only the two portions-- from Ban Khai to the Eastern Sugar Mill, and thence to Ban Map Pu -- should be used for the present study.

The study portion of the Ban Khai - Ban Bung feeder road (Ban Khai - Ban Map Pu) is a 2-lane roadway. The section between Ban Khai and the Eastern Sugar Mill (laterite surface) is about 32 km long. The part from the Eastern Sugar Mill to Ban Map Pu (bituminous surface treatment) is about 6 km in length. The width of the travelled way varies considerably from about 5 meters to about 7.5 meters; the rough surface is characterized by ill-defined edges depending on the terrain in which it is situated.