



Chapter 3

DATA COLLECTIONS

The data collection of this present research were carried out from the beginning of January to the middle of February of the year 1978 which was the peak period of that crushing season. All gathering data which related to the cane transportation in the research such as mode of transportation, cane truck operating cost, time taken for round trips and waste of time of the cane trucks and so on, were taken into account. Moreover, the volume and speed of cane trucks on the main line haul route and the representative minor line haul routes (highway routes NO. 3029,3081,3199), were observed. Nevertheless, some characteristics of truck carrier boats were also carried out. The analysis and interpretation of these data are given in Chapter 4.

Details of these data collections could be classified as follow:

- 3.1 Cane Truck Operator's Interviews
- 3.2 Truck Traffic Observations
- 3.3 Truck Carrier Boats Observations

3.1 Cane Truck Operator's Interviews

The observation were carried out from February 3 to February 8, from 08.30 hr to 16.30 hr. It was found that it was very unefficient method and only a scarcity of data would be obtained by signing hands for cane trucks which were in the midst of running on the road to stop and make an interview. Therefore, the better way to have such reliable data would be done by interviewing the truck's operators at the sugar mills parking areas where they were stopping and waiting for unloading. This procedure

would give better information which would enable variables to be studied. The truck drivers were asked about the origin and destination, (10-wheel diesel engine trucks), number of trips per day and per season, trip distance, transport costs, fuel and oil consumption rates, truck maintenance characteristics, travel time, delay and waiting time, payload weight, speed of cane trucks, etc. The example of an interview forms are illustrated in Appendix A. Total 110 samples of these information were obtained. However, due to some scattering of the answer, only 46 samples were qualified for the use in this study. Results of these information were concluded in Appendix Table A-1, A-2, A-3, and Appendix Fig. A-1 and A-2.

3.2 Truck Traffic Observations

During the crushing period, the consideration of cane trucks characteristics in delivering sugar canes from plantation areas to the mills are very important because large amount of cane trucks traffic were operated on the main line haul route which is the route NO. 323 according to Thai Highway Department classification system, in order to serve fifteen sugar mills in this region. Thus, to reach the main purpose of this research, two characteristics of trucks operation were especially observed. These characteristics were classified directional truck traffic turning movements at intersections, and cane truck speed measurements. The details of these observations would be explained as follows:

3.2.1 Classified Directional Truck traffic Turning Movement at Intersections

Three intersections were chosen to observe the classified turning movement of truck traffic as follow;

3.2.1.1 Route NO. 323 and By Pass Ban Pong Intersection

The observed intersection was taken at KM. 46 + 000 on the route NO. 323 or about 2 kilometres west of Ban Pong district. The function of this intersection were to facilitate all cane trucks from Bang Lane and Sam Pharn districts of Changwat Nakorn Pathom as well as from Ban Pong and Chombueng districts.

The classified turning movement of truck traffic was carried out on February 21, 1978, starting from 12.30 hr. to 20.30 hr.

3.2.1.2 Tha Maka Intersection

The selection of this intersection is based on the reason that it is located at the center of the sugar mills area. The intersection in an intersect of highway route NO. 323 and NO. 3029. Therefore, all cane trucks from Tambol Nong Tak Ya, Amphoe Chom Bueng and Amphoe Tha Muang which travel on highway route NO. 3029, and, some of that from other places which travel on highway route No. 323 have to pass through this intersection.

The classified turning movement count at this intersection was carried out on February 22, 1978, starting from 12.30 hr to 20.30 hr.

3.2.1.3 The Rua Intersection

The most important intersection that collected cane trucks from all of the north part. of the highway route NO. 323 is located at Tambol Tha Rua. This intersection is at the center of Tha Rua market which is a large community area.

The highway route NO. 3081 serves cane trucks from Kam Phang Saen, U-Thong, Suphanburi, Phanom Tuan, Lao Kwan, Phra Tan Dong Rang, etc. It intersects the highway route NO. 323 at K.M.28 + 000. Thus, they formed three legs Intersection.

The cane trucks from various plantation areas will travel in convoy along highway route NO.3081 and approach this intersection in large numbers before turning to the sugar mills. At the same time the empty cane trucks from sugar mills would travel in opposite directions toward the plantation areas. Fig. 12 and Fig. 13 demonstrated the platoon and turning movement of cane trucks at Tha Rua intersection respectively.

The classified turning movement count of the truck traffic at this interscetion was carried out on February 23, 1978, starting from 10.00 hr. to 22.00 hr.



FIG 12 Convoy of Cane Trucks at Tha Rua Intersection

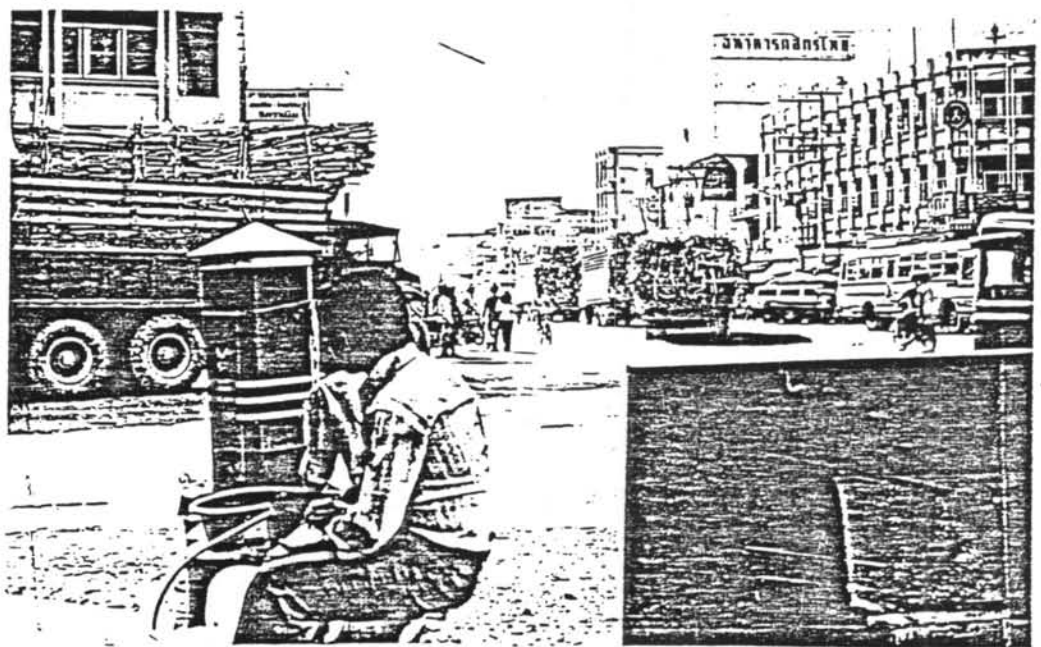


FIG 13 Turning Movement of Cane Trucks at Tha Rua Intersection

3.2.2 Cane Truck Speed Measurements

The truck speed measurements were taken to measure the travelling speed of the cane trucks by using the pavement marking technique. Two selected observation stations for the cane trucks travel speed in the line haul routes were suggested. They were desired to be carried out in such a way that they could represent the travelling speed of cane trucks on paved surface in the region.

The procedure of pavement marking technique, of which 50-m trap length was adopted could be performed in the following manner. The travel times of the cane trucks that pass through the trap length were observed by using one man at each marking end of the trap length. The first one at the truck entry point had a stop watch, and another one at the exit point of the trap length would give a signal by holding his hand up as the head of the truck starts to pass through the marking point.

The measurement of the cane trucks travel time over the trap length would be recorded. That was, the case when the cane trucks reached the first end marking, the first observer would start to run the stop watch, and stop it as soon as head of the cane truck pass the other end marking by noticing the hand up sign from the other observer. By this procedure, the travel times of each cane trucks would be recorded, and, the speeds could be calculated. Details of the two selected observation stations were explained as follows:

3.2.2.1 Station I

The observed station was selected at KM. 99+000 on the highway route No. 323, near Tha Rua marketing area, in the east bound (EB) and west bound (WB) direction for day time.

This station is very close to the sugar mills location and the cane trucks mostly pass by before reaching the sugar mills and leaving for the plantation areas.

3.2.2.2 Station II

The observed station was selected on the highway route No. 3199, at a distance of 6 kilometres west of Kanchanaburi market. This station was desired to be the representative of all minor paved line haul routes in the region.

3.3 Truck Carrier Boats Observations

During the sugar cane crushing period, the cane trucks from southern plantation areas of the Mae Klong river mostly prefer crossing the river by using the truck carrier boats to those longer and inconvenient collectors before reaching the main line haul route. Otherwise, they would waste more time for travelling, operating costs(VOC)and so on.

The data collected from the truck carrier boats comprise of travel times and waiting times. The observations were made as follow:

Ferry No. 1 The observations were made on February 19, 1978 from 19.02 hr. to 20.32 hr. The total sixteen samples

were collected.

Ferry No. 2 The observation were made on February 19, 1978 from 20.00 hr. to 21.24 hr. The total twenty-six samples were collected.

Ferry No. 3 The observation were made on February 20, 1978 from 20.09 hr. to 22.04 hr. The total twenty samples were collected.

The volume of cane trucks using the truck carrier boats were obtained from an interview of the truck carrier boats operators, of which the value are presented in Table 12. Also, the fare charges and capacity of each truck carrier boat are given in Table 13 and Table 14.

Table 12 Volume of cane trucks at ferries.

Ferry No.	Truck volume Veh/day	Average truck volume Veh/day
1	160 - 190	175
2	200 - 230	215
3	180 - 210	195

Table 13 Fare charges of carrier boats

Type of vehicles	Fare charge for one-way trip, ₧/veh. *
10 Wheel cane truck, tapioca truck	23
6 Wheel truck (Large)	20
6 Wheel truck (medium)	15
Bus	10
PC. and Pick up	10

*Cost based on the year 1978.

Table 14 The capacity of truck carrier boats by type of loading.

Ferry No.	Capacity (Veh.)			P.C. and pick up (only)
	Cane truck*		empty truck	
	Full	partial		
1	2 (max)	2 - 3	3 (max)	6
2	2 (max)	2 - 3	3 (max)	6 (max)
3	3 (max)	3	3	6

*Cane truck, including both 10 wheels and 6 wheels

The Chapter 4 is concerned with the analysis of data for the classified directional truck traffic turning movement at intersections, truck speed measurements and the travel time and waiting time of the truck carrier boats which the calculations, tables and figures were illustrated.