CHAPTER 1

INTRODUCTION

1.1 General

Chiang Mai is located in the northern part of Thailand, approximately 700 kilometers north of Bangkok. The city was built in 1296 or 710 years ago as the capital city of Lan Na Kingdom. The total area of the city is approximately 20,000 square kilometers, most of the land are mountainous forest. Due to this geographical advantage, Chiang Mai always attracts people to stay and visit. As the result the number one source of income of the city is from service sectors with average of over 3 million visitors every year which generates approximately 4,200 million baht of income. (Chiang Mai Statistic Record 2005)

The municipal government has developed a city plan which includes four districts, Mae Rim, Maung, Sarapee, and Sanpatong. The total population is 537,429 and 170,576 households within the city plan area. The average number of vehicle per household is 2.74. (Information Technology Service Center, Chiang Mai University, 2003) However, the number of population and vehicle is higher due to the fact that there are millions of visitors per year, some of them pay short visit while others are longstay.
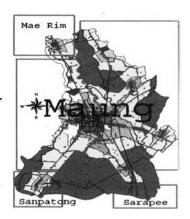

Figure 1.1: Chiang Mai's City Plan

Chiang Mai is the center of commerce, education, industry, and tourism of the northern region. According to the 10th National Economic and Social Development Plan (2002-2006), the city has been developed to become the center of investment, tourism, and transportation and communication in northern Thailand region and also becoming the gateway to the neighbor countries of Myanmar, Laos, and southern region of China.

As other medium size city, Chiang Mai is facing with urban transportation problem. Surprisingly, despite the rapid growth of the city in the past decade, people of Chiang Mai depend mainly on minibuses (See Law Dang) as their major source of public transportation. Minibuses operate without fixed

Figure 1.2: Chiang Mai's Mini-bus

routes and fixed stops and price and destination are negotiable. Due to these inconveniences people tends to depend on their personal transportation, only those people who have no mean of transportation use minibus. In the past, bus transit system was once operated. However, during the economic crisis the service was terminated due to bankruptcy caused by the lack of budget from the government.

1.2 Statement of problem

Due to the rapidly change economically and physically of Chiang Mai, the city's current infrastructure cannot cope with such a rapid development. Although the number of population is increasing normally every year, the number of vehicles is increasing alarmingly in the past five years. The total number of vehicle of Chiang Mai for the last five years is show in table 1.1 below.

Total number of vehicle	Years				
	2000	2001	2002	2003	2004
	695,172	854,716	870,997	936,168	1,167,279

Table 1.1: Total number of vehicle in Chiang Mai

Source: Chiang Mai Land Transportation Department

The increase in total number of vehicle caused by the increasing of four main types of personal vehicle which are under seven seated personal car, over seven seated personal vehicle, personal truck, and motorcycle. Table 1.2 shows the total number of the four type personal vehicle for the past five years. The total number of personal vehicle made up approximately 99% of the total number of vehicle in Chiang Mai.

Type of Vehicle	Years				
	2000	2001	2002	2003	2004
7 Seated personal car	67703	87625	90320	99855	115057
Over 7 Seated personal car	9934	11186	10758	10945	12814
Personal Truck	100974	139019	135863	142424	181600
Motorcycle	510974	614198	631430	680162	854746
Total	689585	852028	868371	933386	1164217

Table 1.2: Number of personal vehicle in Chiang Mai

Source: Chiang Mai Land Transportation Department

The increasing number of vehicle has caused many problems to the city, some has already shown their effects while some are long term problems. The effects of increasing number of vehicles are :

1. **Environmental and health problems:** The common problems found in big cities with traffic problem are air and noise pollution. The emissions from most of the vehicles are combination of carbon monoxide (CO) and other dust particles. These are the basic cause of respiratory track disease such as allergy and lung cancer.

2. **Traffic problem:** Traffic jam is another common problem found in big city, Chiang Mai is no exception. The morning and evening rush hours are the period of the worse traffic jam. The area that experiences the worse traffic problem is the inner ring area with approximately forty square kilometers. The research conducted by Information Technology Service Center (ITSC) Chiang Mai University found that the ration of using personal vehicle is more than 90% of total number of transportation in Chiang Mai. Further more with this alarming rate of increasing vehicle, by the year 2007 the average speed of travel of vehicles within the city plan would not exceed 20 kilometer per hour.

3. **Fuel consumption:** Increasing number of vehicle simply mean increase fuel consumption rate. The rate is also exaggerated by the traffic problem. With the oil crisis experienced by most part of the world, it causes economic depression. Thai government has to spend billions of baht to freeze the fuel price, preventing even worse economic depression. As a result, fuel consumption problem must not only be considered as local problem but must be considered as national problem.

Due to the effects of the problems on people's health, the environment, and the nation as a whole, public transportation of Chiang Mai is needed urgently improvement.

1.2.1   The problems with current public transportation system

The problems with the current public transportation systems can be summarized into two main points which are: the insufficient of public transport and the inability to fulfill the customer's needs. These points are discussed in detail in the following paragraph.

1.2.1.1 The insufficient of present public transport

With the fuel crisis that most part of the world has suffered nowadays, demand for cheaper and more sufficient public transportation is increasing enormously. The problems with present public transportation system can be divided into three categories; time, fare, and quality of service.

• **Time:** Time is one of the major problems with current system since there is no fixed schedule for any of the four means of public transportation.

• **Fare:** Fares are negotiable for all means of public transport. The factors for the fare are distance to destination and the location of the destination. There is also hidden factor that does not usually occur to Thai passengers, that factor is nationality. If the passenger happens to be foreigner, the fare might as well be doubled.

• **Quality of service:** The quality of service provided by mini-bus cause major concern to the passenger more than the other three types. Mini-bus seems to be the most efficient mean of public transport due to its fare and ability to reach destination. However, the quality of service is poor. The passengers are not served in first-in first-out manner. The first passenger may be the last one to reach the destination if his/her destination is no the different route with other passengers after him/her. It is possible for the route to change every time new passenger getting on board. The passenger may be dropped out in the middle of the road if driver felt that his/her destination is too far apart from the rest of the passengers.

1.2.1.2 **The needs of passenger are not fulfilled**

As discussed previously, the insufficient of city's public transportation system can certainly not fulfill the needs of the passenger. The survey conducted by the Information Technology Service Center (ITSC) Chiang Mai University in year2003, shows that the acceptable waiting time for 59.8% of the passenger is five to ten minutes. The acceptable fare for each travel for some 48.7% is between ten to fifteen baht and for another 43.7% is less than ten baht. More than 50% of the sample preferred no transfer for one trip of travel, while some 28.3% were prepare to accept maximum one transfer per trip.

These three major needs of passenger clearly signify inability of current public transportation to serve the passenger's needs.

1.2.2 **The bankrupt causes of previous bus transit system**

The bus transit system is indicated by Chiang Mai government as an ideal mean of public transportation to overcome the inefficiencies of current public transportation as well as fulfill the needs of the passengers. However, bus transit system was once running in Chiang Mai city area before it eventually went bankrupt during the economic crisis period. There were several problems causing it to undergo bankruptcy which can be summarized into two major points which were the problem with the route and the manner of investment.

1.2.2.1 **The route problem**

There were only two routes which the bus were operated, even worse when the two routes were the same. The only different was that the buses were running in opposite direction. The bus ran in circle around the city which could cover only certain city areas. Due to the small areas of operation, the numbers of passengers were not enough to cover the bus's running cost. Before the economic crisis, the government was able to hold the losses. Until the country was hit by the crisis, the government could not pay for these losses anymore and the bus service came to an end eventually.

1.2.2.2 The manner of investment

As discussed earlier, Chiang Mai's public transportation policy stated that the bus transit system must be put into use in the near future. However, the huge amount of investment may cause some delay to the project since the government is the single investor for the project. Once the city bus system is up and running the government must be able to withstand the lack of profit even the losses in the first couple of years. The city bus system is considered to be the public service provided by the government of Chiang Mai. The bus fare must be affordable for every people even though it may lead to the lack of income. Due to these restrictions, once again the city bus may go into bankruptcy. Although the government is planning to co-invest with private sectors, due to the uncertainty of financial status of the project drove the private investors away. The lack of research and study on the public transportation project is the cause of the uncertainty.

According to the problems above, the city is searching a more sufficient mean of public transportation. Bus transit system is the most suitable solution at the current time. However it must be considered that bus transit system is the public service provided by the government. Therefore, the lack of profit could increase the possibility of it undergo bankruptcy once again. One solution which could ensure the successful future of the city bus system of Chiang Mai is the co-investment between government and private sector. The policy of the co-investment is formulated to ensure the successful future of Chiang Mai's bus transit system as well as to solve the inconsistence of fare charge and the unpredictable timetable. If the co-investment idea is accepted and put in practice by the government, it is believed that the number of people using public transport will be increase hence reducing the traffic congestion problem and its related problems.

1.3 Objective of study

The main purpose of this study is to ensure the successful future of bus transit system of Chiang Mai. The specific objectives of this study are listed below:

1. To identify the suitable bus route or routes for co-investment between government and private sectors.
2. To layout the manner of co-investment that can guarantee the most benefits for government, private investors, and the citizen of Chiang Mai.

1.4 Scope of study

This thesis is focused solely on identifying the suitable city bus route or routes from the 33 existing routes within Chiang Mai city area (Amphur Maung, Mae Rim, Sarapee, and Hangdong) for co-investment and providing guideline on three issues: the size of investment, ratio and manner of co-investment, and organization structure, to ensure successful co-investment between government and private investors.

1.5 Methodology

1. Study relevant literatures, journals, internet, and research studies.
2. Research and collecting data on all thirty three existing city bus routes.
3. Survey the needs of passenger.
4. Analyze the information gathered from 2 and 3 and set the route selection criteria.
5. Determine the suitable city bus route or routes for co-investment.
6. Determine the size of investment.
7. Gather information on laws and regulations of co-investment and expectations of the three parties.
8. Analyze the information gathered in 7.
9. Determine the ratio of co-investment and manner of co-investment.
10. Lay out the organization structure.
11. Write up thesis.
12. Thesis examination.

Activities	August				September				October				November				December			
Study related literatures	■	■																		
Research and collecting data			■	■																
Survey the needs of passengers			■	■																
Analyze the information gathered from 2 and 3						■														
Identify the suitable route(s) for co-investment								■												
Determine the size of investment								■	■											
Gather information related to co-investment										■	■									
Analyze the information gathered in 7											■									
Determine ratio and manner of co-investment												■	■	■	■	■				
Layout organization structure												■	■	■	■					
Write up thesis																	■	■	■	
Thesis examination																			■	■

Table 1.3: Methodology Gantt Chart

1.6 Organization of thesis

This thesis consists of 7 chapters and the contents of each chapter are as follow. Chapter 1 is general background, the problems with current situation, the purpose and objective, and scope of study. Chapter 2 describes briefly about the related theories and result of studies that have been done in the past and the interviews with experts and authority in the related field. The methodology for conducting the research is discussed in Chapter 3. Chapter 4 presents the findings in route determination. The project budget is determined in Chapter 5. In Chapter 6, issues associate with founding a government enterprise are discussed. Finally, in Chapter 7 the conclusion from the research will be drawn.