

# CHAPTER I

## INTRODUCTION

### 1 Background of the Research

The important role of transport infrastructure for urban and regional development is one of the fundamental principles of urban and regional economics. In its most simplified form it implies that regions with better access to locations of input materials and markets will be more productive, more competitive and hence more successful than more remote and isolated regions (Jochimsen, 1996). This is not surprising since transport is one element of a complex web of factors that determine the extent to which spatial areas become integrated land. There are also good reasons to expect the optimal level of cohesion to vary between groups of regions and variations in the degree of integration. Much of the recent attention in Europe regarding the use of transport as an instrument of integration has centered upon the creation of an appropriate infrastructure (the TENs Programmes of the European Union, 2005).

Many cities have developed along the transport network routes; some of them are further developed as transportation hubs or markets for interregional trade, since these locations provide better access (lower marginal transportation costs) to other regions. Local products are collected and distributed at such hubs, and interregional trade then takes place among these transportation routes and hubs. As the volume of trade between these routes and hubs increases, more workers are needed in order to meet labor demand for shipping and handling commodities, resulting in population agglomeration (Konishi, 1998).

There has long been a great deal of interest in the relationship between transport network and urban and regional development, especially the impact of the *land transport network* which accounts for the major portion of the transport network in many countries. This topic has captured interest; especially in a land-locked country which has no direct access to seas and relies on land transport which is integrated to the transport networks of other countries within the region.

Several studies on the impact of the integrated land transport network at both urban and regional levels have been performed in Europe. Despite the attention that these topics have received in more developed countries, there are gaps in our knowledge of the role that integrated land transport and associated transport infrastructure plays in promoting urban and regional

development in developing countries. The spatial impacts of transportation networks, on development are assumed positive; however, *there is no clear consensus on their magnitude or scope*. The theory is clear on the expected benefits, however, a number of unanswered questions arise from the empirical literature regarding actual impacts.

In 1992 with the assistance of the ADB, the six countries that share the Mekong River—Lao PDR, Cambodia, Myanmar, Thailand, Viet Nam, and Yunnan Province of the People's Republic of China (PRC)—launched the Greater Mekong Sub-region (GMS) Program. The six countries entered into a program of sub-regional economic cooperation, designed to enhance economic relations among the countries. The program has contributed to the development of transport infrastructure to enable the development and sharing of the resource base, and promote the free flow of goods and people in the sub-region. It has also led to the international recognition of the sub-region as a growth area. The goals of interregional development policy typically include creating the necessary conditions for a robust economic structure and stimulating regional growth.

Given its land locked status, Lao PDR inevitably relies on cooperation with its neighbors in the GMS as an essential part of national economic development. GMS initiatives for regional economic cooperation include policies, agreements, infrastructure and services supporting increased cross border trade and tourism, *especially important in the development of the North-South and East-West Economic Corridors (NSEC and EWEC)*. Other significant ongoing and/or proposed GMS initiatives concern telecommunication technology, regional power interconnection, and private sector participation, human resource skills development, environment management, flood control and water resource management.

Improved national land transport network together with the completion the two Mekong International Bridges integrated with the transport network of the other countries within the region, have had an increasingly positive impact on the urban development in the country. The integrated national road network is for the most part being improved along the alignment of existing provincial and district roads, and in most instances passing through established towns and villages. These towns and many other smaller settlements are beginning to grow as a result of an influx of population seeking to take advantage of the potential for increased trade and employment, as well as the improved level of infrastructure and services gradually being put in place. This situation raises several important questions that have to be discussed. *In this new environment, has urban growth taken place during the last three decades? Where, and what patterns and densities, has new urban development taken place? How has population agglomeration at such transit routes/hubs emerged?*

Based on current practices, this implies that, on average, many of the settlements that are growing along the national highway network are entirely unplanned and made up of largely rural people settlement. The main focus of these settlements is the highway itself, since it constitutes the basis for improved trade and economic opportunity. The cities will most likely double their built up areas to accommodate the doubling of their present populations. Realistic preparations for growth are important: securing the necessary public lands and public rights of way to serve future urban growth; protecting sensitive lands from building; or investing in the minimal infrastructure necessary to accommodate and direct urban development. Master plans to guide development must be produced to ensure that urban expansion will not take place on lands that should be left undisturbed, and newly built up areas are equipped with adequate roads, sufficient land for public facilities and enough open spaces. Study of the causes and consequences of urban development due to the impact of the improved national roads needs to be performed to estimate the magnitude of the recent urban growth and its inevitability or impact.

This thesis will therefore examine the urban development in Lao PDR due to the improvement of the integrated land transport network under the *GMS program*. In view of the above, **this thesis's primary objective** is: *to examine the impact of the integrated land transport network on urban development by examining the increased urban population and area within the country during the last three decades*. In addition, *the correlation between the integrated land transport network and urban development* is discussed in a detailed analysis. *The case studies of two provinces, namely Vientiane Capital and Savannakhet Province, which are the two major hubs and land-linked provinces that have changed and continue to change significantly due to the improved integrated land transport network, are also presented.*

## 2 Objectives and Research Questions

This thesis aims at measuring the urban development of Lao PDR, especially in two main provinces, namely, Vientiane Capital and Savannakhet Province due to the impact of the improvement of the integrated land transport network during the last three decades.

In order to achieve the overall objective of the research, specific research questions have been drawn up. The research questions and sub-questions are follows:

- 1) Has urban growth taken place in Lao PDR, especially in the two main provinces, during the last three decades?
  - Where in the study area has new urban development taken place?
  - In What patterns and densities of new urban development have taken place?
  - Where and how has population growth taken place?

2) Why have some areas within the study area seen faster growth than others?

- What is the driving force that shapes urban growth?
- How has the integrated land transport network correlated to the urban development?
- How has government interventions influenced the formation of the cities?

The thesis attempts to provide the necessary information for urban and regional planners in Lao PDR. The results of this research should help in understanding the correlation between the integrated land transport network and urban development *in the case of a land-linked country*. The research should provide appropriate recommendation on how the country could respond positively to the new environment and take advantage of the expected increase and shift in demand that could be possible in order to enable the country to eventually converge towards the more advanced GMS countries. The outcomes of this research will reflect *the effectiveness of the GMS initiatives for regional economic cooperation including: policies, agreements, infrastructure and services supporting increased cross border trade and tourism, especially important in the development of the North-South and East West Economic Corridors (NSEC and EWEC)*.

### 3 Scope of the Research

*The analysis aims to measure the extent of urban growth in Lao PDR, due to the establishment of an integrated land transport network in accelerating the regional economic development in GMS countries.* The improvement of the integrated land transport network in GMS countries, of which the domestic and inter-country land transport is the most obvious sector, resulted in the formation of cities along the improved routes. Thus, we often find these cities developed as *transportation hubs or markets for inter-regional trade*, since these locations provided better access to other regions.

There will be examination of: the development of the integrated land transport network and measurement of the extent of the urban structure changes that have been taken place. Such in-depth analysis will consider both physical and economical changes such as: the improved integrated land transport network itself, the formation of the new cities, the expansion of existing cities (including the population agglomeration emerging along the transport route or hubs). These effects will be analyzed in depth to respond to the following questions. *Has urban growth taken place during the last three decades? Where, and in which patterns and densities, have the new urban developments taken place? How has population agglomeration at such route or hubs emerged?*

The correlation between the integrated land transport network and urban development *in the case of a land-linked country* is examined by conducting the detailed analysis of the urban development in each province, and the *Case study* of the two main provinces, namely Vientiane and Savannakhet, during the last three decades. The results and the interpretation of this detailed analysis will lead to the answer to the question, "*Why have some areas within the study shown faster growth than others?*" *The outcome of the study* also describes the driving force that shapes urban growth, including government interventions which have influenced the formation of the cities.

#### **4 Research Structure**

The thesis covers a wide range of topics in urban development in relation to the improved integrated land transport network. It is structured as follows:

In *Chapter 2* conceptual frameworks will be introduced. Concepts and the definition of the terms will be elaborated on, based on the literature review of the theories and previous and current researches. The terms, such as: *transport network, transport network effects, urban development effects, urban growth, and urban growth types*, will be clarified. Subsequently, various studies of urban growth will be presented.

The introduction to Lao PDR describes the country's status as a land-locked country and the government policy to alter the country itself to become a land-linked country is presented in *chapter 3*. Overview of Vientiane Capital and Savannakhet Province is also presented in order to perceive its importance roles in Lao PDR as well as in GMS courtiers. In addition GMS and GMS integrated land transport network in Lao PDR, including transport development and transit transport corridors are reviewed. Finally, the integrated land transport network variables and phases is introduced, which will be used to determine the evolution of the transport network in the past three decades and to examine the impact of the integrated land transport network on urban development.

To understand the urban development in the past three decades in Lao PDR, it is necessary to start by looking at the changing in socio-economical conditions since urban growth process is closely linked with economic development process. Hence, *Chapter 4* will review the socio-economic development of Lao PDR during the past three decades. The socio-economic development can be reviewed by various disciplines or angles, among others: (i) Economy policy in each time frame, (ii) the achievement in the GDP growth of each sector (iii) the trade relations in international and regional economic integration and (iv) at the local level concerning the

industry and handicraft establishments in the country (v) Tourism industries. In addition this chapter also describes the changing in population distribution in each time frame, including the percentage of poor by province and urban development throughout the country. Beside the urban policy is addressed to perceive the government intervention in the urban development process.

In response to the research question, "*Has urban growth taken place during the last three decades? Where, and in what patterns and densities, have the new urban developments taken place? How population agglomeration at such route or hubs has emerged?*" Chapter 5 will deal with the primary theme of this thesis is to analyze the impact of the integrated land transport network on both population agglomeration and urban development. GIS software such as 'MapInfo' and 'Arc View' are used to perform spatial statistical analysis of the areas in the whole country to ascertain the characteristics of the population settlement and urban areas formation over time. The measurement of the extent of the urban structure changes (i.e. the expansion of existing cities, including the population agglomeration at such routes or hubs that have emerged along the transport routes) will be done. Besides this chapter will try to link the time-series analysis of the integrated land transport network phase (chapter 3) to the changing in the population agglomeration and urban development (chapter 4) in order to analyze the impact of the integrated land transport network on the population agglomeration and urban development in each time frame. The Impact of integrated land transport network on urban development in the country could be best understood against the background of physical changes in the transport system. The evaluation of the improved transport system during the last three decades in Lao PDR, together with the government policy in improvement of the integrated land transport network to facilitate better access to domestic and international markets, reflected the better transport capacity, efficiency, reliability and level of service. It is clear that the improvement of the integrated transport have definitely brought about the reduction in transport distances and cost, hence an increase in transport volume and economic activities, resulting in the significant changes in both economical-social and physical conditions of the related areas of Lao PDR. Therefore in this chapter, the phenomenon of the growth and declination of the population agglomeration and urban development at both provincial and district level in Lao PDR due to the improvement of the integrated land transport network in each time frame will be analyzed. The analysis will discussed the change in the population distribution, the increased/decreased annual population growth rate and the annual population growth rate distribution. The mean, variance and closely-related standard deviation will be used to determine variability of the annual population growth rate distribution. In addition the analysis of the population agglomeration level, percentage population agglomeration share of each district in its province of each time frame will be calculated and compared, to identify population agglomeration growth tendency of each district in its province. The impact of integrated land transport network on population

agglomeration is also verified by correlating the dispersion of the annual population growth rate with the increased traffic volume, degree of integration, improved transport network over time and increased freight and passenger transport.

Particularly, the analysis is discussed intensively on population agglomeration and urban development in Vientiane Capital and Savannakhet Province as case studies which somehow reflect the pictures of other provinces which share similar characteristics.

The detailed analysis will give us the deep understanding on where/how/to what extent the population growth has taken place leading us to see the various driving forces that shape the population growth, especially driving forces due to the improved integrated land transport network over time. This aspect also includes the analysis of the shift of the size rank of each province in each phase describing the shifting of the importance of its role within the country.

Based on the findings from previous chapters, the answer to the questions: *"Has urban growth taken place during the last three decades? Where, and in what patterns and densities, has new urban development taken place? Why have some areas within the study shown faster growth than others?"* are summarized in chapter 6. The analysis also describes the driving forces that shape urban growth, including the government interventions that have influenced the formation of the cities. This chapter will summarize the findings of the research: (i) the extent and the rate of urban growth during the last three decades, due to the establishment of the integrated land transport network to accelerate the regional economic development in GMS countries, including the patterns and densities of new urban development and population agglomeration. (ii) the correlation between the integrated land transport network and urban development, the driving force of urban development which will provide explanations as to why some areas within the study have seen faster growth than others (iii) the policy implications for future development together with the follow-up research. The improved integrated land transport network in relation to the urban development could provide useful implications if this experience is generalized for practical purposes.