1.1. Introduction

The nature of urban transportation is a very complex subject. "The transport industries which undertake nothing more than mere movement of persons and things from one place to another, have constituted one of the most important activities of men in every stage of advanced civilization" (Marshall, 1992). Transport as such is a service catering to the mobility needs of the rural population as well as city dwellers with a wide range of modes and means. Thus, by providing mobility through the various ways such as land, water, air, etc., transport service increases the place and time utility of various commodities. In modern times, urban transport installation, operation and its management has become a challenge in many of the developing countries. Transport is held responsible for urbanization and concentration of population in cities and towns. As a service, transport is a derived demand and does not exist in isolation for its own sake, but for meeting the economic and social objectives. Certain factors such as population size, structure, number of households, working population, land use such as physical lay out of towns, centres of economic and social institutions and educational activities etc. have an effect on demand for transport. In fact, demand for
transport is the net result of the interplay of its determining factors. Of the two basic components of transport demand, namely freight and passenger traffic, the former is directly concerned with the level of economic activity and development needs and has accordingly received greater attention in planning priorities, but passenger traffic, particularly journeys to and from work and business travel, is as essential to development and maximization of production as freight traffic. Besides, it is incorrect to label non-work passenger journey as socially wasteful entitled to lower or no priority at all, as most non-work travel undertaken by people in cities and on inter-city routes is linked with essential social needs such as visits to families, educational institutions, religious centres and other similar purposes.

The case for creation of transport capacity in anticipation of future demand rests logically on two stronger considerations. Firstly, transport like power is a non-traded commodity, that is, its services cannot be imported and secondly transport investment is lumpy in character. It is, therefore, necessary to allocate funds for creating transport capacity even if the demand for its service does not justify investment on the basis of its commercial viability. Secondly, the lumpiness of investment also makes it necessary to create capacities on a scale larger than is
justifiable in relation to immediate demand if we are to benefit from economics of scale associated with a transport plan.

To meet the increased transportation demand, large investment have to be made which involves an element of risk and uncertainty and moreover long lags involved in construction of transport projects also create difficulties in planning of transport supply. Despite various efforts to augment the capacity of various modes of transport, the sector has generally experienced bottlenecks and capacity shortages. The imbalance between demand and supply of transport facilities has adversely affected the smooth functioning of the economy. However, whether and how the supply will adjust itself to the changes in demand will depend on the resource policy of the government, shifts in plan priorities, and several other imponderables.

1.2. Scope of the Study

Transport, complex a problem as it is, has become one of the burning topics of the day, and its importance has gained momentum with the new developments in the fields of ways, means, motive power, economic and political factors. Hence the scope of the study of transport is much wider today covering such aspects as economic, technical, organizational, social, legal, financial etc. However, considering the sub-
title of our study, i.e. "An econometric analysis of demand for public transportation in Shillong". We restrict our study to public transportation only where public transportation means transportation by the people using both public and private conveyance system. This in no way belittle the importance of transport service, as a whole. Our present study is but a part and parcel of the whole.

Urban transport problem is not peculiar to Shilling city alone, but presents itself as one of the most complex problems of all regions of the world. However, considering the state which host this city, Shillong, being mainly characterized by hilly topography and rough terrains, we are obliged to tackle the problem in a single-minded way with what best efforts we can in our modest way.

In the last few decades, Shillong has experienced phenomenal expansion of population and economic activity. While business and economic activities has mainly been concentrated in central areas, residential colonies have spilled over into suburbs thus greatly adding to intensity of commutation. Essentially urban transport problem arises because of separation of residence from work place, enlargement of employment opportunities and relatively free choice of residence aggravate these problems. In practice the average trip length tends to increase with the growth of the city. When employment opportunities remain concentrated
in central areas trip length increase because residential accommodation keeps on spreading to the periphery which itself drifts further away from core as the city expands. The volume of transport is growing daily and the existing public transport system is under severe strain. Overcrowding is becoming unbearable and ever maintaining the existing transport facilities is posing great difficulties. Urban transportation problem is more pronounced in Shillong, because of its peculiar characteristic which harbours the heavy curvature of roads, hence, reducing the speed of vehicles; the too narrow roads embedded with permanent structures on either sides which would be too expensive to be rooted out; the too numerous vehicles on road made more so because of the increase in private motoring, apart from the fact that the long stretch of road passing through the city also happens to be the National Highway connecting parts of Assam plus being a vital supply route since, there is no other alternative means of transportation other than roadways such as railways, in Meghalaya. The roads being narrow, there cannot be any segregation of the slow and fast moving vehicles. Hence they have to be parked on both sides of the narrow roads. Many a times we find vehicles virtually crawling and in peak hours those who walk on foot reach earlier. Further the large influx of people from rural to urban areas; and the far too-small proportion of land
allotted to transport land-use (roughly 15.76 per cent or 670 hectares out of 10,373 hectares — Master Plan Shillong Area) has made urban transport the problem that it is today.

Efficient land use and location planning can help in optimization of transport effort, but land use planning proved to be a failure in Shillong as well as other Indian cities unlike in the west where it was definitely more effective. This could well be a lack of far-sightedness in the minds of our planners who failed to visualise how far our city would grow. The narrow streets and lanes with sharp curvatures and permanent structures on both sides of the road, the alarming growth of vehicle population with the same size of roads as it was twenty years ago call for the use of flyovers, or over passes or bye passes. Thus land use planning should be regarded as an alternative to solution involving new transport technologies.

1.3. Objective of the Study

A survey of research and literature on transportation, revealed that meaningful studies have not been made so far in Shillong. Hence it was felt desirable to fill the gap at last partially.

Specifically, the following are the objectives of the study:

6
1) To review the development of transport in the state since its inception to the present day.

2) To find out the demand for public transportation in Shillong city.

3) To suggest various measures by which the problem of the transportation in the city can be solved to a certain extent.

1.4. Presentation of the Study

In the process of analysing the aforesaid problem, we would like to chapterize the study under the following:

Chapter-II — Review of Literature — This chapter is devoted to research and literature on transportation in India and abroad. A further classification is attempted to discuss separately studies on different aspects like history and role, policy, planning, energy, investment, cost rate structure, safety, etc.

Chapter-III — State of Transport in Meghalaya — Here we have made a historical study of the development of passenger transportation in Meghalaya with special reference to Shillong from the olden days to the present. We have also made a detailed analysis of goods transportation in the state. Finally, since about 80 per cent of our population live in the rural areas, we have also made a study of rural transport scenario in the state.
Chapter-IV — Data Base, Methodology and Analysis — As an attempt to study the demand for public transportation in Shillong, both primary and secondary data has been collected and compiled to give us a direct though rough idea about the state of transport system in the city. State level data like the number of vehicles on road, the progress of the transportation department, the number of vehicles registered in Meghalaya, the number of routes covered, etc. were obtained from the Office of the Commissioner of Transport, the Meghalaya Transport Corporation and the District Transport Office, Shillong. The P.W.D. and the Planning Department, Government of Meghalaya, gave us other vital information required for our analysis.

A questionnaire had been designed to collect relevant information about the family size, monthly income, number of trips made by the respondents, distance from home to the nearest bus stand, market educational institutions, bank, etc., frequency of service and expenditure incurred on transportation.

Econometric models have been designed to estimate the demand for passenger-transportation as well as to study the relationship among the concomitant variables besides understanding the influence of the exogenous variable upon the endogenous variable.
Chapter-V — Conclusion — In this chapter, we briefly review the main findings and highlight various suggestions by which the problem of transportation in the city can be solved to some extent.

We honestly believe that this type of study will highlight the problem of Shillong transportation and as such help the planning process to carry on work on those lines which need rapid development.