CHAPTER II
REVIEW OF RELEVANT LITERATURE

Various authors have expressed their views on different aspects of transport economic. It is beyond the capacity of an individual to make a comprehensive review of literature on all the aspects of transportation. The present study attempts to deal with a few literature and research work which includes analysis of history and role of different modes of transport system, their problems, transport system and commodity flow and some relevant subject. The authors have explained about the transportation system and its uses for the economic development of the country but they all have failed to discuss the prospects of the transportation system of the gateway of Northern Region or metropolitan city Gauhati for the development of the entire Northern Region. Transportation is one of the prime factors for all kind economic activities. However the geographers gave little attention in this respect. For long no conscious effort was made to define the nature and objectives of transport. However from the later part of the last century some efforts have been made to develop this branch of activities. Gradually, systematically approaches were introduced and as a result it recognized as one of the distinguished branch of geography. The following are the discussion of the different authors in this regards.

STUDIES OUTSIDE INDIA:

Several author like Sherrington, Mance, Jackman, Dagget, Barker, Robins, O’Dell and Richard and Miller have explained the history and role of one or another modes of transportation in foreign countries such as UK, USA, Canada, Germany, New York etc which are mentioned below:-

Miller, Sidney, L, Inland Transportation Principles and Policies, A Review and extension on Railway Transportation, Mc Graw Hill, New York, (1933) also explained the role of various modes of transportation giving on railway expansion in New York.

Jackman, W.T, Economic Principles of Transport, Toronto University Press, (1935) was of the opined that though development of motor, water and air transport has attracted a large share of passengers and goods traffic from railway. Yet for carriage of bulk of the freight traffic, railways must be given the prime importance. His study did not preclude the high carriers specially carry services in commodity movement. He discussed the problems in the background of Canada.

Sherrington, C.E.R, in his book “The economics of rail transport in great Britain, Edward Arnold and co. London”, (1937). Analyses the problem of railway transport in Great Britain. He explains how cheap transport helped in Great Britain to established trade supremacy during the nineteenth century. Larger past of Britain was served by water communication (cannel system) Britain was fortunate in possessing a long shore line with splendid entries which provided a cheap route to much of the countries area and large quantities of bulky good be carried by this means at low cost.

Bryan Leslie A., Principles of water transportation, the Ronald Press Company New York, (1939) on the other hand has emphasized upon the business aspect of ocean and inland transportation. He made a historical survey of ancient and modern maritime enterprises and discusses the problem of cargo movement by water transport and offers several suggestions for future development of water transport USA.
Mance, H.O., The road and Rail transport problem, SIR ISSAC PITMAN and Sons ltd, London, (1941) throw a light on the problem of rail road competition and coordination in USA, French, Germany, and Northern Ireland. He mainly concentrated his study on goods traffic.

As a pioneer prof. Ullman, E.L. in his book “transportation geography, American geography and prospects” (1954). marked out the nature and objectives of this branch and showed its concern with economic aspects which involved study of various features of traffic volume, origin and distribution, rate structures and type of physical facilities.

Mayer, H., Accessibility as a Measure of the extend of urban Nodality in Chicago Region, A.A.A.G Vol 44, (1954),” Traffic management is an inter-disciplinary area that requires expertise from many fields like engineering, law, social sciences (psychology, humanities, etc.), economics, ethics and management”.

The trip generation is a general term used in transport planning to covert the field of calculating the number of trip end in given areas. It is used to understand the reasons behind the trip making behavior. In this regard the contribution of Fratar, T.J., Vehicular Trip Distribution by Successive approximations Traffic Quarterly vol VIII No 1 sangatuck (1954).

Voorheers, A.M., A general Theory of Traffic Movement, Proceedings of the institute of Traffic Engineers, (1955), pointed out on Transportation is the factor, which determines the speed of growth and development of a place. Transportation literally means to carry something from one place to another. It can be executed by any means such as through roads, rails, airways, waterways pipelines etc.

Barker, Michael, Transport and trade, Oliver and Boyd, Edinburg (1986) and Robins Robins, L. The Nature and Significance of economic science, MacMillan and Co
ltd London, (1955) analyses responsibilities of the transport profession in the UK. They have also pointed out that financial constraint is one of the major problems for better traffic management. To solve this problem a proper policy needs to be devised in such a way that instead of wastage of fuel and manpower during traffic jams road users could be provided trouble free highway and at the same time there may not be additional financial burden on the Government.

Milne, A.M, the economics of inland transport, SIR ISSAC PITMAN and Sons ltd. London, (1955) discuss transport problems in relation to wider economic consideration of use of scarce resources. He gives emphasis on coordination of different modes of transport so as to avoid duplicity of service and wastage of resources. He made a study of the history of development of transport in Britain.

Dagget, S., Principles of Inland Transportation Harper & Brothers New York, (1955) admits the difficulty of describing all modes of transportation in the United States without the limit of a volume of moderate size. Yet he includes all the major forms of transport in his discussions, because he believes that those different mechanisms of transport are not closely connected with one another that it is not possible to understand the activities of any one of them without talking into cognizance of the work of others. He made an exclusive study on the movement of a few commodities like limber, citrus, fruits, sugar, coal, steel, grain etc. in USA. The present study also is an attempt to follow the same procedure dealing with the subject.

Almost in some way Garrison, W.L., Benefits of rural Roads to Rural property, Chicago, (1956), Glimore, H.W., Transportation and the Growth of cities, illions, (1953) and Horwood, E. M., and R.R. Bryce on “Studies of Central Business District and Highway development, Seattle, (1956)” also tried to show the impact of transportation upon the changing landue pattern within and proximity of the towns.
Rural-urban relationship study forms an important basis of geographic research in India and abroad. In this regard the contribution of Morril, R.L., on his book “Migration and growth of urban settlements, Lund Studies in geography series.”, (1956) has given importance on Transport network development is considered to be one of the keys to rapid modernization and development, especially for better traffic efficiency.

B.J.L. Berry, Recent studies concerning “the role of transportation in space Economy”, (1959), later observed that specialized economy. Circulation and traffic and transport system are mutually interdependent.

Clark, W.A.W., Consumer travel pattern and the concept of Range annals, Association of American geographers 58, (1959) are important in the city of Morril emphasis was given on the analysis of road transportation and consequent growth of urban areas. On the other hand Clarks worked out on consumer travel pattern.

Currie, A.W., Economics of Canadian Transportation, 2nd ed. University Press, Toronto, (1959) also present a detailed survey with specific reference to the role of transportation in the Canadian economy. William gives a comparative study of transportation on the USSR and USA with special reference t the composition and growth of freight transport.

Tanner, J.C., Factor Affecting the Amount of travel, Road Research Technical paper no51 HMSO London (1961), stated that Network Analysis aims at finding solutions to routing problems related to reversibility, rate of flow, and network connectivity. It helps in identifying optimum locations for services to be provided.

development of the road network needs to be adjusted and aligned with the functions carried and in accordance with the level of service required such as pathway needs to be developed economically while for strategic pathways aimed to strike a balance between regions can be developed according to the needs of the road network such as highways or roads”.


David, E.S., Commercial Passenger linkage and Metropolis Nodality of Montevideo eco geog. Vol.38, (1962) and Green, F.W.H., Urban Hinterland in England and Wales in urban Research method New York, (1966). A growing body of evidence proves that simply expanding the road infrastructure cannot solve traffic congestion problems. Therefore, many countries are working to manage their existing transportation systems to improve mobility, safety, and traffic flows and to reduce demand for vehicle use.

Model split is a process of separating person trips by the mode of travel. in general, model split reference to the trip made by private car as opposed to public transport. Along with this the trip characteristics i.e. trip purpose and trip length aspects have been analyzed. These have been done by Keefer, L.E., Characteristics of Captive and Choice Transit Trips in the Pittsburg Metropolitan Area, H.R.B. Bulletin 347 HRB Washington (1962).

Schneider, M., A Direct Approach to Traffic Assignment, Highway Research Record no 6, H.R.B. Washington (1963) stated “Transport is essentially a derived demand depending upon the size and structure of the economy and the demographic profile of the
population. Greater the share of commodity-producing sectors like agriculture and manufacturing, higher is the demand for transport”.

Among the theoretical studies, the work of Kansky, K.L., and Structure of transport Networks; Relationship between Network geography and regional characteristics, Research Paper No84 University of Chicago, (1963), deserves first mention. Some of the transportation characteristics analyzed are accessibility, circuitry, traffic etc. passenger traffic has given less priority in his analytical models. In this regard a few other works can be recorded. The typical sequence of transport development in the under developed countries have been worked out by Kansky.

Taaffe, E.J. Transporatation Development in urban-developed countries, the geog. Rev vol L III (1963) have also focused similar to the above approach like kansky.

According to Vaislevsking, L.L. Basic Research Problem in the geography of transportation of capitalist and underdeveloped countries, soviet Geography, Review and transport, (1963). The transport geography is general falls in two divisions-(i) the geography of traffic (ii) the geography of transport routes (transport – net, lines modes).

Fogal, R.W., Rail road’s and American Economic growth, John Hopkins, (1964) explained “Detention of vehicles causes lower speed, loss of time, high fuel consumption and idling of vehicles, leading to underutilization of transport capacity and adversely affecting their operational viability”.

Traffic frequency become essential, particularly for developing countries, when the capital available is scarce and has competing demands, the investment in transport project have to be planned carefully. This underlines the need of traffic forecasting. But the long range transport planes are not very useful because the planes do not exist in other sectors. In general, transport plans are done for a period of about ten years – five years in details
by Goldberger, A.S., Economic Theory, Wiley, (1964) theories in this regard found to be most relevant.

Stuart, F.S. and Biard, H.C., Modern Air Transport, John long, London, (1965) made a survey of the world air transport position and have found that air transport affairs are developing every day. New modes of air transport have been developed every day. They also discussed about Britain empire airlines and USAs airlines.

Wilson, F.R., The Journey to Work-model split, Maclaren, (1967) stated that “Transport is basically a derived demand depending upon the size and structure of the economy and the demographic profile of the economy”.

Transport assignment is another planning process wherein the trip interchanges are allotted to different part of the network forming transportation system. The main applications of traffic assignment are to determine the deficiencies in the existing transport system to develop construction priorities and to test alternative transportation system proposals by systematic procedures. A number of methods have been tried in this regard. Significant contributions in this respects made by Zakaria, T., and J. Falcocchio, The Traffic Assignment Process of the Delawars Valley, Regional Planning Commission, and Highway Research Record no 250, H.R.B. Washington, (1968).

Burrell, J., Multiple Route Assignment with Application to Capacity T Restrain, 4th international Symposium on the theory of Traffic flow, Karlsruhe, (1968), has emphasized on “Road transport is vital to the economic development and social integration of the country. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport an increasingly higher share of both passenger and freight traffic vis-à-vis other transport modes”.

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Braton, M.J., Introduction to Transportation Planning, Hutchinson Technical Education London, (1970) stated “Today road transport segment occupies an overwhelming dominance within the transport sector with a share of 4.5% in GDP compared to a meagre 1.1% share GDP in case of railways”.

Application of factor analysis in the functional regions within a city by Goddard, J.B., Functional Regions with a city centre; A study by factor analysis of taxi flows in central London, Transportation of the institute of British Geographer, 49, 179 pp 160-180 (1970) are some of such examples.

Of late many scholars have contributed substantially to the field of transport. The works of J.O. Wheeler and F.P. Stutz (1971) on spatial dimensions of urban social travels and its significance to the economic development.

O’Dell, A.C. And Richard, P.S., Railway and geography, Hitchinsan and Co London, (1971), have concluded the rail way transport in the best agency for meeting requirement of transport facilities in Britain.

A. J. Solt (1971) on transport network, S.J. Bernstein (1973) on mass transit and the urban have emphasized the importance of road transport for the nation building, such literatures appeared.

James, Suburban growth, geographical process at edge of the weste city. John Wileg and Sons. London (1974) has given an economics model and demand for transportation. He review the performance of railway transport and states the one of the basic criteria for reducing commodity market is by offering lower freight rates of railways which depends on its efficiency.

Hitchkok, Barshise, Planning of Transport Operation, Transport and Road Researcher laboratory, (1975) stated “Further Road transport sector is subject to myriad of levies/taxes (both Centre and State) with no provision of set-offs in case of many taxes/levies, leading to cost and price escalation which erodes competitiveness of domestically produced manufactures”.

The transport expert Michael Thomson (1977) in one of his book identified seven major sets of transport problems in the large cities of capitalist countries. These are traffic congestion, accidents, public transport, pedestrian’s behavior, environmental impact and parking.

Kirkadly, Adama and Evans, Alfred Dudley in the book “the History and economies of transport, Sir ISSAC PITMAN & Sons ltd New York (1977)” also discussed the development of various transport giving emphasis on railway and water transport in Britain.

Warner, S.L., Stochastic choice of made in urban travel; A study in Binary choice North Western university press, Evasion Illinois, (1982) stated “Despite good performance of the road transport sector it is beset with slow technological development, low energy efficiency, pollution and slow movement of freight and passenger traffic”.

Raghavachari, S., Model split model for work trip travel, Indian highway, New Delhi, (1982) stated “Barrier free movement of passenger and freight by road across the country is vital for promoting efficient economic development and growth. A goods vehicle in India is answerable to all the checkpoints and traverses under conditions which are not ideal, leading to lower speeds and low utilization of rolling stock”.
The work of John Whiteleg, J., “Urban Transport, London, (1985)”, covers the aspect like transport and land due in urban areas. The structure of personal travel, roles of cars and private vehicles in urban areas etc. have been defined.

The transportation has received an opt response from urban geographers. Urban sphere of influence, hierarchical order of an urban centre, suitability of a town and a centre for different specialized facilities are controlled mainly by the transport facilities. These aspects have been studies by Brown, P.A., The local Accessibility in Nottingham, the East Midland geographer, No11, (1989).

**STUDIES IN INDIA:**

Colonial imperialism has thrown India into the vortex of a squeezed economy. In India goods transportation was meant to drain the country. Even so amongst the different means of surface transport, railways had spread out gradually in different part of India. Different researcher and writers have shed light on different aspects of railways and other modes of transport. Most of such studies have given importance to road and railway transport.

The development of railway rates and governmental regulations over them also need careful examination. Ghose, S.C., on his book “A monograph of Indian Railway rates, Railway Board New Delhi”, (1918) is pioneer in this field. The development of transport rates and governmental regulation has been examined in the light of their impact on the economic development of India. It is worth mentioning that most of the investigation on Indian freight rates structure undertaken by different scholars in the subsequent periods was essentially based on the work of Ghose.

Pathak, B.N. Road transport in the North East Region of India, Unpublished Ph.D. Thesis, GU (1951-79) and Sachdeva, Narinder Nath, Motor Transport in New Madhya Pradesh, Agra University. Agra (1979) have emphasized that “Transport is not demanded in its own right. The demand for transport reflects the level of social and economic activities and the benefits it provides in their pursuance. But as these benefits are high, the role of transport has kept growing in production as in everyday life”.

Sejwalkar, P.C. History and problems of railways in India, Unpublished Ph.D. Thesis Puna University, Pune. (1958) states “Keeping in view the road damage factor there is need to move vehicle taxation of goods vehicles in particular from gross vehicle weight to axle loads”.

Tiwari, Ram Swarup, Railway in Modern India, New Book Co Bombay, (1941) in his study on Indian railway rates in India concluded that the rate policy followed in India was injurious to the development of indigenous industries; the rate policy was such that it favoured the export of raw material and import of finished goods. In a latest study a critical analysis of freight rate structure of India’s railway has been undertaken by Agnihotri, Sashi Prakash, The role of road transport in our Developing economy, University of Rajasthan, (1985).

The role of Road transport in India was discussed by Pathak, B.N. Road transport in the North East Region of India, Unpublished Ph.D. Thesis, GU (1951-79)

Mishra, Gopal Krishna, Railway rates and fares in India since 1950, Department of Economic, Indore University Indore, (1965) and Mittal, Kailash Chandra, An intensive
study of Indian railway freight policy before and since independence, Department of Commerce, Jodhpur University, Jodhpur, (1963), who made extensive studies on road transport rates in India and as per them, road rates should be minimum for the overall progress of the nation.

Bharadwaj, U.S., The Pune city and its Economics of Transportation, Abstracts of Thesis, I.I.T Kharagpur vol 1, (1955), states “Overloading has detrimental effect on service life of the pavement and results in increased maintenance it also results in higher road user cost, besides increase in pollution level”.

Morril, R.L., Migration and growth of urban settlements, Lund Studies in geography series. B, Human geography 26, (1956) states “Road networking is an important aspect of transportation and a challenging issue that has emerged in the urban communication system. A perfect road network can play an effective role in a smooth communication system”.

The history role and problems of railway in modern India have been studies by Tiwari, R.D., Railway rates in India, Longman, Green and Company ltd, Bombay, (1957).

Chottopadhyaya, Saty Saran in his studies “Organisational Operation of Calcutta state transport corporation, Calcutta social Sciences vol-III. (1958-66) focuses “The importance of transport can be measured in different ways. One obvious way is to look at the physical characteristics of the transport system: the length and quality of the road network, of railway lines and waterways, the number of vehicles, vessels and aircraft in use, the amount of tonnes carried and passengers moved, and the emissions, accidents etc. linked to these movements”.

Mahajan, C.C, Traffic forecasting for transport Planning, Transport, August (1960) some of the scholar like Chand M., on his studies “Railway rates and fares in India since
1849- A historical and Analytical study, Delhi School of Economics, University of Delhi, (1964) states “An equally obvious alternative is to look at transport in terms of the value it adds to GDP and to use these data with data from the national economic accounts for industrial analysis. But this approach is not without problems either. Advanced societies produce a great variety of transport services. Their abundance makes it difficult to adequately identify and categorise them and to attach a value to them”.

Johnson, V, The economics of Indian Rail transport, Allied publishers Pvt. Ltd, 15 Graham Road, Ballard Estate, Bombay, (1963) review the origin and history of Indian railways during British regime. He is of the opinion that the introduction of railways transport in India was directed not so much by economic consideration as by strategic reasons and administration facilities. He also examines the present organization and performance of Indian railways to defend out to what extent railways have been instrumental in moulding the socio-economic life of the country.

Singh, R.L., & V. Singh, Road Traffic survey of Varanasi, (1963), states “Highway patrolling system along the entire National Highways should be made mandatory in order to enhance safety on roads”.

Dutt, A.K., An analysis of commutation to the metropolis of Calcutta, National geographical Journal of India, vol 9, (1963), states “All accident prone spots along the National Highways network should be identified and proper engineering measures in terms of improvement of road geometrics etc. should be taken”.

Before that Singh, J., transport Geography of south Bihar, Banaras, (1964) traced out transport studies in different countries in which four objectives found common-(1) to make the study of the transport system in a region a systematic on (2) to develop a transport network which controls rational proportion between the growth of transportation
and other aspects of regional economy (3) to examine the role of transportation in space economy and (4) to use transformational expression as a tool for analyzing or explaining other geographical phenomena.

Mathew, M.O., Rail and road transportation India, Scientific Book Agency, 103 Netaji Subhas Road, Calcutta-1, (1964) discuss the role of rail and road transport in India. He emphasizes that the degree of economic and efficiency on the transport industry as a whole is determined by organization consideration in the context of unit sizes.

Singh, D.N., Accessibility in North Bihar, National geographical journal of India, vol 13, (1967), “Bus transport makes the most optimum use of the available road space and fossil fuel by transporting the maximum number of people per unit of road space and passenger Kms/litre”.

Seri Sinha, B.N., & L.T. Sharma, Traffic pattern at Sirsi -Dharwar, (1968) emphasized “The economic development of a region is directly related with the development of the transport system in the region”.

Sen,H., The Geometric structure of an optimal transport network in a limited city Hinterland case, Geographical Analysis,(1971) states “Accidents carry high economic and social costs which are not easy to measure. The cost of road accidents is estimated in the range 1 to 3 per cent of GDP as per the various studies”.

These are very few works on the aspects of city has service for urban transport system. In India the works of Kayastha, S.L., & K. Singh, Some Aspects of Transportation in Dhanbad, The national geographical Journal of India vol. xviii part 2, June (1972) states “Urgent need to modernize vehicles (mainly goods carriages) in use in the interest of environmental protection, fuel economy, safety and lower running costs”.

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In this regard the assessment on rural urban relationship done in the study of Hyderabad Metropolis by Manzoor. S., Alam and W.Khan, Metropolitan Hyderabad and its Region; A strategy for development, Asia Publication House, Bombay, (1972) states “The importance of traditional transport as a source of income can be determined by relating the value-added embodied in the transport activities of the traditional transport industries to GDP”.

The inadequacies of transport freight rates were later examined by Mehta, N.B., Indian railway rates and regulation, railway board, New Delhi, (1972) in his pioneering study with special reference to the Indian railways. The major emphasis of the study was to examine the structure of railway freight rates and the power of the government to control it.

Mukharjee, A.B., Road transportation network structure and levels of urbanization in Rajasthan, The national geographical Journal of India, vol xx part 1, (1974) states “Occurrence of accidents and road fatalities is an outcome of interplay of a number of factors which among others include length of road network, vehicle population, human population and adherence/enforcement of road safety regulations”.

Das D. Jayadeva, Administranrtion of the Kerela state Road Transport Corporation, Unpublished P.hD Thesis, Kerela University, Trivandum (1975) have studied the role and problems of nationalized road transport undertakings.

The study on Bangalore city by Prakash Rao, V.L.S., and V.K. Tiwari, The structure of an Indian metropolis; Bangalore-An urban survey, Allied Pub. New Delhi, (1980) and on rural urban migration to Delhi metropolis by Banerjee, B., Rural to urban Migration and the urban labour marker; A case study of Delhi: Himalayan Pub. House Delhi (1987) states “The goods to be carried may require special handling, strict timing,
sophisticated transport equipment and/or supporting activities not to be had in the
transport market. If available, however, services by professional hauliers may in this case
involve transaction costs that would wipe out any cost advantages for-hire transport may
offer”.

Srivastava, S.K., Economics of transport, S. Chand & Co ltd, New Delhi 55,
(1981) gives a historical survey of the means of transportation and also examines their
present position and offered suggestions for the improvement of their operational
efficiency.

Pathak, Morethaw Ganjanan, Roads and road transportations in Marathawada
Doctoral Studies in Social sciences, Part-II (1985) and Sexana, K.K., Indian Railways;
Problems and Prospects, Vora & Co Bombay, (1962) have pointed out “Transport is a key
element in the development of any society. Advances in transport technology have
extended the range of markets, enabled new methods of production, fostered specialization
and strengthened social, political and economic ties between countries and major
geographic areas”.

has assessed the gradual development of various means of transport India and their
problems.

In regard to role of transport in human interaction and economic interdependence
the contribution of a few researchers are worth mentioning, analysis of economic
interdependence of Meerut city with surrounding rural places and urban centre’s done by
Kumar, N., Economic interdependence and Human Interaction in Meerut city proceedings
With the growth and improvement of different modes of transport, transport management has become an important subject. Khan, R.R., Transport Management, Himalaya Publishing House, Ramdoot, Girgaon, Bombay-04, (1986) has dwelt at length on management of transport.

Singh, Mohinder and Kadiyali, L.R., Crisis in road transport, Kanark Publishers Pvt. Ltd, Delhi-92, (1990) highlight the present troubled state of Indian road transport. They emphasized on the absence of modern road highways, traffic congestion, road risks and pollution and other problems of road transport. They are of the opinion that congestion lead to haulage of goods time consuming and expensive. They also make specific suggestion to meet the problems of road transport.

Studies on Air transport in India are very rare. Dekhney, M.R., Air transport in India, Vora & Co ltd, Bombay-2, (1994) explain the origin, history, the dynamic nature and the economic problems of air transport in India.

STUDIES IN NORTH EAST AND ASSAM:

The aspect mentioned above are discussed by the researcher not only in other countries of the world but also studied in India. However, most of the studies in India are piecemeal in nature. In case of Assam, such studies are very few. However, following studies in the state, particularly in Guwahati are note worthy.

Pathak, Morethaw Ganjanan, Roads and road transportations in Marathawada Doctoral Studies in Social sciences, Part-II, pp-3 (1975) in his research work analyses the problems and prospects of roads transport in North East region of India.

At the state level Medhi, S.B., Transport system and economic development of Assam, Publication Board, Assam, Guwahati-21, (1978) for the first time, made a
systematic and methodological study of the transport system of Assam giving special emphasis on the railway transport. Beginning with a historical background he analyses the role of alternative mode of transport, their interrelationship and discuss its impact on the economic development of the region. In his study he examines the impact of railway development on selected economic activities like agriculture, industry, and employment of trade and industry and the high cost of living in this were primarily the result of transport condition and high freight charges.

Mrs Deka D., Regional analysis of road transport in the Brahmaputra valley, Guwhati University, (1979) on the other hand makes a study of the transport in the Brahmaputra valley. She emphasizes the relative importance of advantages of road transportation over other modes of transportation. She finds that limited railway expansion, high cost of air transportation and under developed water transport facilities have compelled the farmers, consumers, traders and industrialist to depend mostly on road transport. She feels the need for immediate introduction of nationalized transport system over the entire valley.

Road transport in Brahmaputra Valley Deka,D., Regional Analysis of Road Transportation in the Brahmaputra Valle-A study in its Development and Potentialities, Ph.D Thesis unpub. G.U. (1979) is the significant work to be mentioned.

Literature on transport in North East region is very limited. Borthakur, S., The problem of transportation system in North East Region of India, Gauhati University, (1990) While analyzing the problems of transportation in North East emphasizes the need for containerized movement of commodities which offers saving of transport cost to a commodity or to a region which has strong infrastructural base. But due to narrow roads, weak pavement, weak bridges, lack of adequate handling facilities, with meter gauge railway system, the fall economies of containerized movement of goods do not accrue to
the trading class of this region. He is of the opinion that unless there is an improvement in
the transport system, trade and commerce of this will suffer greatly.

Literature on water transport is very rare in this region; Deva Sharma, H.K.,
Prospects and problems of Inland Navigation in Assam, Gauhati University, (1990) took a
traditional approach while discussing problems and prospects of inland navigation in
Assam. He suggested that water transport should be developed as a complementary to road
and railway transport in Assam.

Moreover water logging problems of Guwahati by Bora, P.C., and R. Saikia, A
geomorphologic study of water logging problem in Guwahati city Assam, Proc. ESD Nat.
through land use planning by Sahoo, R., and J. Borah, Environment management through
land-use planning zones in Guwahati, Ptoc ESD Nat. Conf. org by Cotton College,
Guwahati, (1998) and landslide hazards zone of Guwahati city by Das Saikia,B., and R.
Saikia, Landslide Hazard zonation of Guwahati city area, Proc. ESD Nat. Conf. org Cotton
College, Guwahati, (1998) are some of worth mentioning.

The white paper on pollution in Guwahati with action point P.C.B.A. white paper
on pollution in Guwahati with action points, (1999) deal with various environmental issues
of Guwahati. Many of the issues are related to the road transport in Guwahati. Remote
sensing application in wetland mapping by C.R. Deka and P. Barua (1993), urban water
supply study by Barua are noteworthy contributions, Guwahati path finder published in
2000 by SRDC in which detail road network and distribution of basic infrastructure like
banks, schools, colleges, post office, police station, temples, church, mosque, rivers,
telephone exchange, hostels, hospitals, warehouse etc have been plotted after extensive
survey.


The development of roadways in Assam by Goswami, B.M., Development of roadways in Assam; souvenir, Indian road congress orgs by PWD Govt. of Assam, (2003),
a macro study for safety on roads in greater Guwahati during (1974-81) by Barua, N.N.,
Need for Mechanisation and compaction control in flexible pavement souvenir Indian road
congress, orgs by PWD govt. of Assam, (2003),

Bora, P.K., Delay and congestion studies of road traffic on some selected roads of
Guwahati Assam, Sc SOC, Guwahati (2007) states that inspire of having plenty of
resources, the North East region is economically backward. He marks the inadequate and
ill planned transport system mainly responsible for backwardness of this region. He is of
the view that transport planning should be given prime importance in this region keeping
an eye on the overall economic growth rate sought to be achieved in the plan period.

The foregoing review of literature and research on transportation shows that the
dimension of the subject is vast and deep. The present study has not touched many aspect,
particularly at the state level, cannot be exaggerated. The present study can be regarded as
the brick to bridge the gap between research effort made so far.. The effort of the study has
not touched at the gateway of North Eastern region.

RESEARCH GAP:

The above mentioned studies have not touched the Road transportation problem in
metropolitan area of the state particularly the problems and prospects of Guwahati city
was not discussed earlier. Therefore researcher has attended to visualize the problems
inherent with road transportation of Guwahati city. Researcher has also tried to find out
opportunity in promoting road transportation. Therefore researcher has opted the following
studies.