CHAPTER - II

REVIEW OF LITERATURE AND RESEARCH DESIGN

The preceding Chapter was intended to serve the objective of presenting a general view of Transport Development in India. Now, this Chapter sets out specifically the broad framework of the topic of the present study. To begin with, the initial part of this Chapter is devoted to review the existing studies conducted by the distinguished authorities, which are related to the road transport sector in variety of manners. Subsequently, it highlights the research design employed in the present study.

2.1 REVIEW OF LITERATURE

Pant, D. (1945) while studying on ‘Transport Problems of India’ has emphasized on the maintenance of roads and he cautions by saying that ‘before one inch of road mileage is increased, the existing roads should be maintained in proper condition. It stands to reason that if the existing low road mileage cannot be maintained on grounds of finance, more roads will fare worse. And there is absolutely no sense in increasing the road mileage if the existing roads get liquidated during the period of addition. Therefore: GET BACK: SET THE ROADS RIGHT. Every scheme for increase in road mileage should be suspended till the existing roads are normalized. This does not mean that we have adequate road mileage, but it is a better policy to maintain what we have got than to wipe out the old and add the new’.

Dunbar, C.S.(1953) has carried out a detailed study on ‘Goods Vehicle Operation’ and the author has made an attempt to establish relationship between the operating costs and the types of vehicles. The author feels that with the growth of road
transport, an increasing specialisation and improvements have taken place in body, chassis and engine design, but no new method of propulsion has been introduced for more than 50 years as the operators have to choose between animal traction, steam, electricity or internal combustion. The author further reveals that it is in the last field that greatest progress has been made especially since the introduction of diesel engine in the late 1920s.

**Branham, Arthur K. (1955)** in his research work 'Transport Factors and National Transport Policy: A Partial Analysis' has remarked that only by keeping the total cost of transportation as low as possible, consistent with adequate service, can the basic objectives be fully accomplished.

**Ramandham, V.V. (1957)** in his study on 'Economics of Rail - Road Policy has touched upon the efficiency of rail road co-ordination which resulted from the organisational integration of road rail services. The author has compared the rail road policy in India with the public policies adopted in different countries especially U.S.A. and U.K. and has concluded his study by suggesting the creation of a Transport Commission to assume charge of the transport policy in its entirety.

**Ramaswami, K.S. (1958)** in his study on 'Transport in India' has opined that roads feed railways and are fed by them in turn; The prosperity of railways is closely linked with the capacity of the roads to develop and collect traffic and carry it to railway terminals—— the two means of transport are complementary to each other and should not be considered competitive in a planned economy.
Fair, M.L. and Williams, E.W. (1959) in their study on 'Economics of Transportation' observes that the formation of economic progress of any nation rests upon its knowledge of and ability to utilize most efficiently its natural resources. Further they opine that transportation efficiency is the key that frequently unlocks great storehouses of natural wealth, the exploration of which makes possible the development of a wealthy nation. The authors feel that the development of cheap mechanical transportation makes it possible to open up rich but isolated resources and turn them to the satisfaction of the needs of man.

Eaton, R.J. (1960) has carried out a detailed study on 'Transport Management in the Agricultural Co-operative'. For keeping up with the times, the author feels that developments in and affecting transport are now a days frequent. Mechanical and similar improvements go on and new materials & techniques in vehicle design appear. In this regard the law too is always on the move - new-rights new-duties affecting transport operation are established by Parliament, the Ministries and the Courts. The author suggests that a receptive and wise transport manager can keep up with the moving times by (a) regularly reading transport journals and trade bulletins, (b) becoming an active member of a professional body or bodies.

Bhatnagar K.P., Bahadur Satish, Aggarwal D.N. and Gupta S.C. (1961) in their group study on 'Transport in Modern India', maintains that thee characteristics of our modern everyday existence - specialisation of production, cheap consumer goods, the fast tempo of life and close interdependence between individuals, groups and nations are brought about mostly by modern means of transport.

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Taff, Charles A. (1961) in his study on 'Commercial Motor Transportation' has highlighted the problems that arise with the restriction on interstate movement of goods. The author has observed that the State want to equalize the tax burden between local and outside carriers; and that they seek to advance the interests of the States through the control of competition among the modes of Transportation. The author feels that the interstate barrier problem possesses such importance, due to its effect upon carriers, shippers and the public, as to warrant a more thorough examination by public officials. The author concludes that the cost of these barriers are borne by one or all of the groups depending upon economic circumstances.

Srivastava, S.K. (1964) in his detailed study on 'Transport Development in India' emphasis on transport co-ordination. In this regard he spells out in detail the strength & weaknesses in having co-ordination through dependence, voluntary co-ordination, statutory co-ordination and lastly co-ordination through Nationalisation. He further reveals that while the first is discriminatory, the second one is rather impossible to make. Moreover socialists favour nationalisation as the State aims at maximising the social advantages. The author is of the opinion that statutory co-ordination is advisable for those communities which favour restricted State interference and want fullest control over transport monopolies.

Kalyanaraman, S.R. & Sehgal, T.R. (1965) in their research article 'Methods for Estimating Future Road Traffic', have advocated two models namely the mechanical and analytical for the estimation of transport demand. The authors reveal that while the mechanical demand simply projects forward the past trends assuming that future demand is a direct function of the past experience on the ground that
people’s preference and tastes etc. will not undergo much change. The authors further reveal that analytical model classifies and analyses the several related components which influence the factors that have caused the historical trend pattern and how it is likely to behave in future so as to find out future demand.

Rupenthal, M. Karl (1965)\textsuperscript{12}, while elaborating in his research work ‘Issues in Transportation Economics’, regarding Government regulations in transport sector observes that no other industry can exert such an important impact on the economy as a whole and on particular areas as transportation can. The author feels that large or sudden changes in transportation rates can give inordinate windfalls to certain carriers while driving others to the brink of bankruptcy or worse. Smaller changes in selected transportation rates can affect large segments of important industries. The author cautions that even minute changes in some transportation rates can exert widespread impact on large geographical areas.

Singh, Parminder (1966)\textsuperscript{13} in his research study ‘Organisation & Working of Punjab Roadways Chandigarh Depot’, has analysed the organisation set-up of Chandigarh Depot of Punjab Roadways. The author evaluates the day-to-day working of the said organization. In addition, analyses of certain areas in the field of personnel management, financial management, internal administrative machinery, labour relations and operating results have been made in the study.

‘The Department of Economic & Market Research’, Hindustan Motors Ltd. (1968)\textsuperscript{14} have conducted a research study on ‘Road Transport in India’. The research scholars have viewed seriously the numerous constraints in the growth of transport sector in India. The authors feel that the greater the number of RTAs that
have to be approached for extending the area of validity of a inter-regional permit, the
greater is the delay as normally time taken to secure a permit generally range
anywhere from three to six months. As regards financial constraints, the authors have
observed that due to the high risks to which a transport operator is constantly exposed,
the rate charged by the hire purchase company is generally very high and mostly the
operator is often forced to buy vehicles that are recommended by the latter. The
authors conclude that in such circumstances, it is the sheer enterprise of the transport
operator, his patience, grit and power of endurance which sustain him in his
enterprise.

Charles, P.J.(1969)\textsuperscript{15} in his research work 'A Postenor evolution of the
Economic and Social Effects of Investment in Transportation Infrastructure' has tried
to examine the economic and social benefits of investment in transport by applying
the cost-benefit technique. However, the author admits one limitation in the
application of this technique to underdeveloped countries i.e.measurement of social
benefits. Consequently, the author feels that in underdeveloped countries ,
infrastructural investment like transport are based more on faith than anything else.

Strucker, James P.(1969)\textsuperscript{16} in his research study 'An Econometric Model of
the Demand for Transportation', has framed a general model applicable to both urban
and rural setting. The basic assumption made by the author in his study is that each of
the quality attributes can and should be expressed as a cost associated with the
shipment of goods. Based upon this assumption the author has developed an
economic demand model for transportation market. The theory is applied to empirical
data and estimating equations are derived which express the transport rate as a function of product as well as transport attributes.

Srinivasan, N.S. (1970) in his research article, ‘Long Term Measures to solve Urban Mass Transportation Problems’, has observed that the research work done in India on traffic (both passenger and goods) planning techniques is yet to be developed and the techniques developed abroad especially in the West cannot be applied to India due to different traffic and other conditions prevailing here. The author has further suggested some techniques for land use planning.

Lane R., Powell T.J. & Smith P.P. (1971) in their group study on ‘Analytical Transport Planning’ have observed that as regards transport planning in times to come, the most important factor in planning a future transportation system is the relationship between transport and general town planning and development. The author argues that any major change in the basic transportation network is in the long run likely to have a profound effect on the pattern of development.

Dalvi, M.Q. (1973) in his study on ‘Land Use Planning and Forecast of Future Urban Travel’, has reviewed the existing methodology for estimation of urban travel demand by five main analytical stages i) Land-use model, ii) Generation model, iii) Distribution model, iv) Assignment model and v) Evaluation model. The author has contended that the land use model plays a critical role in the forecasting of the future urban travel demands and hence in the planning and designing of the future urban transport planning.
Singh, V.B. (1973) in his research article 'Principles of Investment in Transport and Indian Planning' has dealt with the case for transport sector to be in the State sector for the following reasons: (a) rapid economic development; (b) The Public Sector has to come forward for catering to the needs of quick, time saving transport to the urban and rural people; (c) There is a progressive nationalisation of private sector and the pre-industrial means of transport driven by animal and manpower are replaced by power driven vehicles; (d) In response to the low income of the masses, priority is to be given not to the so called 'people's Car' but to inexpensive and quick public transport and inexpensive scooters autocycles and bicycles for private use. The author argues that these features also generally provide that framework for investment in transport in socialist countries like India.

Chand, Bidhi (1975) in his research study on 'Nationalised Road Passenger Transport in India with special reference to Punjab Haryana and Himachal Pradesh', has made comparative study of Punjab, Haryana and Himachal Pradesh nationalised road passenger transport to test the hypothesis that nationalisation of road passenger transport leads to operational efficiency, decline in cost and improvement in customers and employees' satisfaction. Physical efficiency has been analysed on the basis of increased output per unit and more economic use of the inputs. To examine the financial performance, the various indicators such as return on capital investment, receipts per mile, net profit per mile, depreciation policy, interest on capital have been used in the study. The researcher has tried to put forward that complete nationalisation is not practicable for several reasons like lack of funds, red tapism, corruption, increase in cost operations, defective taxation structure, inefficient form of organisation and so on.
As Jariwala, C.M. (1975)²² while focussing on interstate trade in his work ‘Freedom of Interstate Trade in India’ observes that India today stand on the threshold of an economic and commercial revolution. where the expansion of government activity involved makes an increase in the revenue needs of the state inevitable. He pinpoints that on the one hand the states need more revenue, whereas on the other hand thee development of commerce requires freedom from tariff barriers. He clarifies that the case law under Part XIII reveals that taxation is the major barrier to freedom of inter-state trade. While presenting the insight view he says that the cases reported in the AIR upto December, 1972 shows that 55 per cent of cases were concerned with taxation and out of this 30 per cent of the cases pertained to sales tax, 15 per cent cases were motor tax and the remaining were general taxation cases. Under the mounting needs of finance and the liberal attitude of the Courts towards taxation, there is a danger that the States may increase these barriers so that inter-state trade is discouraged. He concludes that in such a situation the best solution is to minimise such barriers by co-operative effort.

Sampson, R.J. and Farris, Martin T. (1975)²³ in their study on ‘Domestic Transportation’ have observed that the efficient transportation makes it possible for large geographical areas to be politically unified. They further add that the cultural similarity, mutual understanding and the economic interdependence brought about by large scale inter-regional trade reduces tendencies towards isolationism.

Henry, Arnold K. & Miller, Sidney L. (1976)²⁴ in their study on ‘Transportation and Traffic Management’ feel that the creation of place and time utility add to the usefulness of goods and tend, therefore, to increase demand for the
goods. Further they add that the demand for transport is derived from the demand for goods as in most cases, usefulness of the goods also requires creation of form utility and utility resulting from ownership. Substantiating their viewpoint they say that in the case of goods, transportation is a factor in production & distribution and this factor will not be purchased by the users unless the added utility is at least equal to the price charged for the service. Therefore, it should be emphasized that transportation is only one of the many factors entering into the cost of supplying foods through the production and distribution processes. They conclude that given the economic effects of the transportation on the demand for goods and the supply of goods, transportation affects the price of materials and products.

Rahi, Kishore (1977)\textsuperscript{25} in his research study on 'Performance of Public and Private Transport Undertakings (A case study of Punjab Roadways and Ambala Bus Syndicate Private Limited)', has made an effort to examine the comparative performance of the Punjab Roadways and Ambala Bus Syndicate Private Limited on the basis of two criteria of efficiency i.e.; the trend in profitability and managerial efficiency. Profitability was evaluated on the basis of productivity i.e.; rate of return of capital invested. Managerial efficiency was evaluated in terms of aggregate traffic receipts, aggregate traffic service provided, aggregate effective kilometers, aggregate cost, aggregate capital invested and rate of return on capital invested. The study reveals that the Ambala Bus Syndicate Private Limited has a clear edge over Punjab Roadways in terms of commercial performance, but in non-commercial spheres, Punjab Roadways dominates. He has concluded that generally public sector can cater public utility services like road passenger transport in a better way.
Stern, Arthur C. (1977) in his research work ‘Air Pollution” observes that the expanding metropolitan area, environmental inadequacies of suburban design, increasing use of automobiles and the difficulty in correcting the problem through local and national action specifically directed at stationary sources and the automobiles lead to the conclusion that air pollution must be approached with other associated problems on a regional basis.

Chand, Hari (1980) in his research study ‘Functioning of Nationalised Road Passenger Transport - Haryana Roadways - A case study’, has traced out the factors which are influencing the performance of Haryana Roadways. The various indicators taken into consideration for evaluating the performance of Haryana Roadways were profit maximisation, physical performance in terms of size of fleet, percentage fleet utilisation, vehicle utilisation and buys staff ratio, and performance in terms of cost per effective kilometer. The author has concluded that Haryana Roadways by and large has been performing well and suggests that profitability can be enhanced, if Haryana Roadways is allowed to charge economic fares.

Munshi, Sunil Kumar (1980) in his study on ‘Geography of Transportation in Eastern India under the British Raj’ has observed that the road system in eastern India remained the most neglected mode under the British Raj. He says that this is not surprising that good roads radically improve intra-regional and local connectivity and are positively conducive to local development as in Uganda the building of roads to cotton - producing areas led to an increase of production by 70 per cent. The author further reveals that similar studies in North Borneo and Malaysia showed that building of one kilometer of highway led to the productive use of hectares of agricultural land. He concludes that in eastern India the few truck roads which existed
before Independence, only duplicated the role played by railways without in any manner enhancing links between areas lying in the interior of the region'.

**Kulshreshta, D.K. (1982)** in his research article ‘Performance Budgeting with special reference to Road Transport Industry’, says that there is need to design an appropriate Management Information System in road transport undertakings keeping in view the requirements of performance budgeting. The author further says that the performance reports should give cost performance data integrated with scheduled performance, enabling quantitative evaluation of the services rendered at each stage of review in order to control the physical performance as function of the resources deployed.

**Dagli, Vadilal (1983)** in his work ‘Commerce Year Book of Road Transport’ focuses attention on both the growth of road transport industry & road development and gives comprehensive information in regard to road transport units in the public and private sectors in India.

**Gupta, M.P. (1983)** in his study on ‘Metropolitan Transport System’ observes that Transportation has made a major contribution to whatever agricultural and industrial development that India has achieved. He further reveals that it is due to inadequacy of transportation that agricultural and industrial development has lagged behind at some places; leading to imbalances in regional development.

**Vaidya, S.C. (1983)** has done an analytical study ‘Inter State Road Passenger Transport with special reference to Punjab - A study in cost, organisation and operations’. For that cost classification method has been adopted by classifying
total cost of operations into two categories namely, variable cost and fixed cost. The author has made an effort to work out the impact of inter-state operations on operational cost and profitability in a road transport undertaking i.e. Punjab Roadways and PEPSU Roadways Transport Corporation. As regard to profitability analysis, the various indicators selected in the study are earnings from inter-state and intra-state operations, break even analysis, route wise profitability analysis and statewise profitability analysis of inter-state operations. The author has pointed out that inter-state operations in comparison with intra-state operations have done well in almost all the depots of road transport in Punjab. The author reveals that the cost of operations in P.R.T.C. has been higher than that of Punjab Roadways. The main factor responsible for such variation in cost are 'Cost of Personnel' and "Interest on Capital". In the end, the author has pointed out that inter-state operations have yielded high profits as compared to intra-state operations.

Das, Sri Sricharan (1984) in his doctoral work 'Organisation and Management of Road Transport', has observed that the Development of a country is gauged by the mileage of roads it has per 1000 square miles of area and per ten thousand of population and also by the quality of road surfacing and adequacy of its bridging. Moreover he says that the closer and more efficient the road net-work of the State, the greater is the flow of trade and commerce over it, and the greater the development of industry and economy.

Rao, D. Panduranga (1985) while highlighting the advantages of good road system in his work 'Trends in Indian Transport System' states that efficient road transport system helps industries in getting raw materials and other requirements
cheaply and quickly. He further says that roads also help decentralisation of industries as the development of small scale and cottage industries become possible in rural areas due to the close road contact with their urban markets and the availability of raw-materials at cheap prices.

Satyanarayan, J. (1985)\textsuperscript{35} in his research on 'The Working of Andhra Pradesh State Road Transport Corporation', has made an in-depth analysis of the working of the Andhra Pradesh State Road Transport Corporation from various aspects. He has evaluated the external factors (like inflation, governmental and social) and internal factors (such as operational, management and organisational aspects) which influenced the profitability position of the Corporation. To improve the financial position of the Corporation the author has suggested automatic linkage of fares with costs and to improve over-all efficiency by introducing organisational changes in the corporations.

Raza, Moonis & Aggarwal, Yash (1986)\textsuperscript{36} have concluded in their study that the inter-regional trade may be considered to be the consequence of the immobility of some factors of production which are not evenly across space. The author feel that if all the factors of productions - land, labour and capital - were mobile in all aspects exchange of goods have been rendered unnecessary. Further, they caution as regards the problems which an ill conceived transport mechanism may create. They state that a transport network is established with a view to facilitate economic and social interaction in space - both at the intra and inter-regional levels; Moreover, if the impulses of development processes are weak, distorted and ill-balanced, inter-regional disparities in the availability and utilisation of network facilities emerge on the scene
and may continue to persist over time. They conclude that the urban-rural differentials consequently tends to become more and more sharp.

Arora, S.K. (1987)\textsuperscript{37} in his work on 'Economics of Management in Road Transport Industry' has made an attempt to evaluate the performance of passenger transport services in the public and the private sectors. For evaluating the performance, various physical and financial indicators have been taken into consideration. The author reveals that road transport industry consisting of public sector undertakings and private operators is suffering from declining revenue and increasing cost. Due to urbanization, the demand for transportation is increasing at a very fast rate but the sanctioning of new routes will lead to further increase in losses. He further adds to say that there is however a scope for issuing new routes to private operators as they are operating below the equilibrium level and hence their capacity utilization can be increased which will lead to more returns. Lastly, he concludes that organisational form hardly makes any difference on their performance as the present road transport industry is organized into departmental public undertakings corporation and private operators.

Tewari, J.N. (1989)\textsuperscript{38} in his research article 'Social Cost - Benefit Measurement in Education and Transport Sector' gives a broad spectrum of the type of problems a project analyst has to face in project appraisal while trying to quantify and measure benefit in sector like education and transport; The author feels that the degree of sophistication one can adopt in actual practice really depends on the data base and the time available for completing the appraisal exercises.
‘The Publication of Lok Sabha Sectt.’ (1989) on ‘Transport in India’ reveals that the road transport is one of the most promising and potent means for rapid industrial and agricultural advancement as it plays an important role in the economy of the country and is particularly suitable for short and medium distances. Furthermore it has been opined that it provides the basic infrastructure for bringing the majority of the people who are living in far off villages into the main stream of national life by connecting them with the rest of the country. The study also reveals that while railways occupy the predominant position in the transport network in the country, the role of road transport has steadily been increasing.

Pandey, N.P. (1990) in his research work on ‘Geography of Transportation with special reference to Western Madhya Pradesh’ has viewed the transport system at each step both as an integrated structure as well as in terms of relationships between different transport services. The author feel that where the entire economy is in the process of growth and large areas are still but scantily served, the area of conflict between different modes of transport is by no means considerable and under such circumstances the capacity of each mode of transport has to be developed to meet the specific demands of the region.

Gautam, P.S. (1992) in his research work on ‘Transport Geography of India’ has intensively described about the pattern of transportation in Chambal Division of Madhya Pradesh. The author has analysed impact of transport on literacy, urbanization, agriculture, industry and occupational structure. The author concludes that these factors are greatly influenced with the development of transport facilities.
Smith, Peter (1992) in his research article ‘Controlling Traffic congestion by Regulating Car ownership : Singapore Recent Experience’ has opined that the public transport should be strengthened instead of individual vehicle ownership.

Mahajan, Sanjeev Kumar (1993) in his research study on ‘Performance of Public Undertakings in Himachal Pradesh with Special Reference to Himachal Road Transport Corporation’ has made an attempt to analyse the operational efficiency & finance health of H.R.T.C. in terms of physical performance and quality of service for the period 1977-78 to 1987-88. The author has observed that the main reason for decline in fleet utilization has been the plying of condemned buses on road and lack of maintenance facilities. The author further reveals that as regards quality of service, the respondents expressed dissatisfaction with regard to 27 indicators out of total 38 meaning thereby that the H.R.T.C. is taking undue advantage of its near monopoly position in the State.

‘Birla Economic Research Foundation’ (1993) in their research study on ‘Roads and Road Transport - Problems & Prospects’ have concluded that though the road transport sector is heavily taxed at all levels, the allocation of resources for road construction and maintenance is meager. And therefore, while it is imperative to plough back a substantial portion of the taxes collected from this sector for its development and expansion, it is also high time that the bold policy changes are introduced and new measures devised to augment the resources for investment in road transport and for modernisation and upgradation of the road network.

Gopalakrishanan, C. & Kukade, S.N. (1994) in their research article ‘Road TRansport : A strategy for Hill Area Development’ have highlighted the role of
Transport in economic development of a hill region. The authors feel that considering the cost and the nature of operation in hilly areas, it is neither possible nor desirable for the railways to expand far and wide in these areas as the cost of construction and maintenance of railways may be exorbitantly very high in hill regions. Considering these constraints the authors are of the opinion that the development of road transport appears to be the best option to provide an efficient transport system in the hilly states.

Kumar, Sanjeev (1994) in his research study on ‘Financial Planning and Control of State Transport Undertakings of Punjab, Harayana and Himachal Pradesh’ has analysed the financial planning and control of State Transport Undertakings of Punjab, Haryana and Himachal Pradesh with the technique of standard costing and marginal costing.

Naidu, P.S.V. (1994) in his research note ‘Motor Vehicle Act, 1988 and Road Safety’ has highlighted the important fact that though India’s vehicle population account for only 1 per cent of the world vehicle population, unfortunately it is contributing to 10 per cent of the total deaths due to road accidents in the world.

Padam, Sundarsanam (1994) in his research article, ‘Road Transport : The Emerging Perspectives’ has emphasised on bringing efficiency in the transport sector by technological upgradation. In this regard, the author reveals that road transport accounts for 70 per cent of the consumption of high speed diesel in the country. The author further adds that there is a need to improve vehicle technology so that fuel efficient vehicles are available in the market as the author opines that vast savings can be achieved in the consumption of petroleum products not only by training the drivers
but also by eliminating enroute stoppages for checking and tax & duty collection. The author concludes that entire regulatory mechanism should be geared to ensure free movement.

Pearce, T.C. (1994)\(^49\) in his research article ‘Black Smoke Emissions and Fuel Consumption’ pinpoints that many operators are reluctant to perform extra work on their vehicles during maintenance periods and will not do so unless it can be proved that they will save money.

Ramachandran, T.G. & Rao, M.V.N. (1994)\(^50\) in their group work ‘Design of Maintenance Schedule in Relation to Operating Conditions’ have emphasised on designing a maintenance schedule in relation to operating conditions such as the condition of roads, altitude, terrain load factor etc. The authors further add that the size and structure of the organisation plays a significant role in the design of a maintenance schedule. The authors conclude that successful implementation of a maintenance schedule will result in economic operations, thereby contributing to the financial health of the organisation.

Ramasaamy, N. (1994)\(^51\) in his research article ‘Evolution of Road Freight Industry in India’, has attempted to make overview of the Road Freight Industry in India. The author reveals that though the Road Freight Industry in India operates over 14 lac trucks, it does not get the rightful recognition it deserves. In this regard the author feels that the truck operators in the country face many irritants like levy of multi-point octroi, which impede the free flow of goods traffic which are required to be removed forthwith. The author opines that organisational improvements with a
view to encourage pooled operations through corporations and limited companies should go a long way in the development of this sector.

**Baviskar, S.B. (1995)** in his research article ‘Road Accident - A Man Behind the Wheel’ has revealed that with the introduction of commercial transport system, unemployed ones find that learning and possessing licence for driving is a good means of getting employment and this situation has created a boom of drivers. With a view to bring further improvements in driving quality and reduction in number of accidents, the author suggests for prescribing minimum educational qualification for all motor drivers, standardisation of driver licence examination for assuring quality of service and for setting up of driver training school.

**Bayliss, B.T. & Millington, A.I. (1995)** in their group study ‘Development in Transport Policy - Deregulation and Logistics Systems in a Single European Market’, reveals as to how in creating a Single European Market (SEM), the European Union has sought to achieve efficiency gains both through improved resource allocation, and through the increased scale of operations and level of competition. The authors further reveal that the regulation of both domestic and international haulage operations in the EU member States has related to access to the profession, access to domestic and international markets and tariffs.

**Chand, Mahesh (1995)** in his research article on ‘Cost of Road Accidents in India - with Special Reference to Kerala’ has observed that automobile boom is becoming curse in disguise by killing and injuring millions of people all over the world. The author further reveals that the cost of the accident to the victim, to the family of the victim, to the nation, to the national economy, to the society are all
different. While highlighting the socio-economic significance of reduction in number of accidents the author feels that accident reduction is likely to influence the insurance business, reduction in load & cost of judiciary, medical, police & other services, reduction in pain, grief & suffering of human beings in general and generation of confidence in travelling while increasing its demand.

Halder, D.K. (1995)\textsuperscript{55} in his research article 'Energy Consumption and Air Pollution by Urban Transport Modes' reveals that at present the share of transport sector in the total energy consumption is as high as 25 per cent of the world's primary energy resource and is responsible for 22 per cent emission of carbon dioxide. The author further reveals that the air pollution in the urban areas of the third world countries has already reached an alarming proportion and subsequently regulatory measures and technical changes have produced some good results in the developed nations but not in the developing countries.

Malini, Esther (1995)\textsuperscript{56} has observed in his research article 'Infrastructure Leasing - A Novel Method of Financing Transport Projects' that since the cost of road construction and maintenance have steeply increased, and the budgetary allocations of the Government are inadequate to provide for the required extent of road infrastructure, many countries are now turning to innovative financing procedures and are successfully tapping the private sector capital. In this regard he reveals that there is a gradual shift towards the privatisation of roads with the private companies or consortium of private companies, being encouraged to participate in creating and operating public infrastructure.
'The Committee on Transport Policy and Co-ordination (Final Report)' (1996)\textsuperscript{57} has rightly observed that in India even with the network now existing, certain deficiencies stand out because they reduce the efficiency of the road system to an extent which is not yet sufficiently appreciated.

Narain, Yogendra (1996)\textsuperscript{58} in his research article 'National Highways and Toll Roads in Asia' has observed that most of other countries have also faced problems in mobilising funds for their highway improvements and maintenance. The author further reveals that tolling of the highway is an important source of raising extra budgetary funds for highways and this concept is gaining momentum in many Asian Countries, though the concept of tolling the highways in India is rather new. The author concludes that roads are not commercially viable on the basis of toll revenues alone and as such a large portion of the cost for mega projects has to be compensated by the Government in one form or the other.

Raghavan, S.N. (1996)\textsuperscript{59} in his research article 'Private Sector in Transport services and Infrastructure' reveals that the response to toll road projects from the private sector has not been quite encouraging mainly because of the fact that the private sector is not very clear about the existing legal and institutional framework. He concludes to say that clear and transparent rules, regulations and procedures have to be framed with a view to enable the private sector to participate in road projects.

Gawhne, S.H. (1997)\textsuperscript{60} in his research article 'HRTC - The Road to Nowhere' has made a systematic analysis as to how the excessive centralised control in decision making may retard the growth of even a perfectly feasible corporate enterprise. The
author feels that Himachal Road Transport Corporation is a perfect example of all that can go wrong with State ownership of a service enterprise.

Thus we can say that though there exists a strong relationship between investment in transport facilities and economic strength of the country, it is not so simple to mobilize huge funds for investment in the transport sector.

**Research Gap:**

The foregoing reviews of research and literature on transportation testifies that the dimensions of the subject are vast and deep. A discerning examination of the studies reveal that transport occupies an important place in the socio-economic development of a country and inadequacy of transport resources may lead to imbalances in regional development. Thus the need for further research on each of the aspects already dwelt cannot be exaggerated. The present study can be considered as one among the many bricks that will be required to bridge the gap between research needs and research efforts made so far.

The various distinguished researchers and scholars as mentioned above have touched the problem of transport sector from one or another aspect. It may be investment in transport facilities, the essence of transport or the scope of transport planning & performance etc. Furthermore, most of the studies confine to the comparative financial performance and analysis of Road Transport Undertakings either owned by Central Govt. or State Govt., thus leaving much place to undertake empirical studies on financial performance and analysis of privately owned goods transport operators, also recognised as the backbone of the economy. For that the most essential pre-requisite for developing an efficient private goods transport sector
is the establishment of an adequate network of roads in the country. Therefore in the five decades of Planning in India, there is a need to highlight as well as analyse the development in roads and road transport sector.

Thus to say in few words, the overall reviews mentioned above are not so specific towards the analysis of policies and problems relating to the road transport sector during these five decades of Indian independence, especially the privately owned goods carrier so as to put forth some suggestive measures for the benefit of transport in private sector which is exposed to a complex and variety of work situation.

### 2.2 Research Design

Research Design is the basis upon which data is collected for the purpose of a research work and observations are made on numerous fronts. Therefore, it helps in carrying out a research plan successfully and provides the empirical and logical basis for drawing conclusions and gaining knowledge in an orderly way.

#### 2.2.1 Need of Present Study:

The extent and utilisation of resources is often determined by the character and the density of population of a country. The density of population depends largely upon the geographical environment, i.e. climate, soil, vegetation, topography etc. The transport and population - the two components are very much related to each other as the prosperity of a particular area, State or a nation depends upon its economic activities. Although, it is agriculture, industry, trade and commerce that provide a nation's wealth, but transport being the life blood of the economy, these activities cannot flourish without adequate transport facilities. By the 50th year of
Indian independence, Road Transport has come to play an important role in the growth of economy in general.

Specifically, the development of road transport facilities in these 50 years has come up as a boon especially to the hill State of Himachal Pradesh. The State has taken big strides in horticultural development. The exceedingly favourable agro-climatic conditions prevailing in the State offer vast scope for the development of fruits like apple, nuts, citrus fruits, temperate fruits and other sub-tropical fruits. There has been a phenomenal increase in the production of fruits. In 1960-61 production of fruits was 19020 tonnes whereas in 1990-91 it was 386310 tonnes. Besides, the State is the largest seed potato supplier and the second largest ginger producer in the country. The important minerals found in Himachal Pradesh are rock salt, slate, limestone gypsum, etc. An effort is being made to properly harness the hydro-power potential of the State, which is estimated to be one fifth of the aggregate hydro-power resources of the country. The exploitation of the minerals in the State has been on the increase. The construction of buildings, commercial complexes is going on at a tremendous speed.

As the transportation is closely woven around these activities, transport has a big role to play in this regard. In Himachal Pradesh approximately seven to nine thousand vehicles are registered annually out of which ten per cent are goods carriers. Approximately five hundred to one thousand goods carriers are registered annually in the State. These carriers ply inside the State as well as outside the State. For the prosperity of this Hill State, it is essential that this private transport sector may be made efficient, as a healthy private transport is likely to provide long-term benefits to
the State. So it is necessary to acquaint oneself with the development of events chronologically related to the road transport in our country, especially the concern shown by the authorities for the development of transport in this hill State.

Therefore, by recognizing the real importance of transport, it becomes essential to study on the topic "The Development of Road Transport with Special Reference to Goods Transport in Himachal Pradesh".

2.2.2 Scope of the Study:

The scope of present study covers the data based analytical study of the growth of transport facilities in India. Moreover, the present study emphasis to cover country's road transport policy in general and viability of goods transportation units in the hill State of Himachal Pradesh in particular. Hence the scope of study presents a generalised view of road transport sector and covers a fact fining survey of privately owned goods transport units in Himachal Pradesh.

2.2.3 Objectives of the Study:

The objectives of the study carries an assessment of problems and impact thereof by finding out areas of success and failure in implementation, analysing the reasons of success or failure, ascertaining the peoples reaction and deriving lessons for improvement in the formulation and implementation of the policies and programmes.

Herein, the present study is focussed on the following pin pointed objectives:

1. The first objective of the study is to highlight the development of Roads and Road Transport in India especially progress made in the Road Transport Sector over the last five decades;
2. To critically analyse the progress made so far in the field of Roads and Road Transport in general;

3. To make an empirical analysis of views presented by the Goods Transport Operators (both HCVs operators & LCVs operators) specifically in the State of Himachal Pradesh;

4. To evaluate the Banker’s response as regards the financing of Goods Transport Operators in the State of Himachal Pradesh;

5. To scan out the reasons which are still inhibiting the growth of goods transport sector;

6. On the basis of analysis and interpretations, to make suggestions of some use for the road transport sector in general and goods transport of Himachal Pradesh in particular.

2.2.4 Hypothesis:

In order to study the difference between the responses as shown by HCV operators and LCV operators in the State of Himachal Pradesh regarding choice of profession, operational efficiency and other problems being faced by both type of Goods Transport Operators, certain hypothesis were framed and tested with the help of $X^2$ ($X^2$ at 5% level of significance). These hypothesis are as under:

1. There is no significant difference between the perception of Goods Transport Operators as regards the prime need to have sound experience/business background to enter into a business of transport.
2. There is no significant difference between the perception of Goods Transport Operators as regards their rating of a profession of Good Transport Operations.

3. There is no significant difference between the perception of Goods Transport Operators as regards the operational efficiency of the vehicle on return trips.

4. There is no significant difference between the perception of Goods Transport Operators as regards availability of spare parts/essential components to their vehicles.

5. There is no significant difference between the perception of Goods Transport Operators as regards competition and freight rates.

6. There is no significant difference between the perception of Goods Transport Operators as regards other problems while dealing with various authorities.

7. There is no significant difference between the perception of Goods Transport Operators on post-evaluation as regards their decision of choosing a profession of Goods Transportation.

2.2.5 Research Methodology:

Truly, the tremendous advancement in the human knowledge that has taken place in the last two centuries is mainly due to the adoption of systematic methods and not just as a matter of chance. In the present study, number of methods have been used to achieve the aforementioned objectives of present study. Moreover, the present study is based on both, the primary data as well as the secondary data.
Secondary Data:

For the purpose of present study, the secondary data has been collected from various sources. Mainly the data has been collected from the following sources:

i) Basic Road Statistics from Ministry of Surface Transport, Govt. of India, N.Delhi;

ii) Motor Transport Statistics from Ministry of Surface Transport, Govt. of India, N.Delhi;

iii) Annual Reports of Ministry of Surface Transport, Govt. of India, N.Delhi;

iv) Economic Survey of India Issued by the Central Govt. from time to time;

v) Reports on Five Year Plans issued by the Central Govt. from time to time;

vi) Official records published as well unpublished from Transport Department, Govt. of Himachal Pradesh, Shimla;

vii) Official records published as well unpublished from Himachal Pradesh Public Works Department, Shimla;

viii) Official records published as well unpublished from Himachal Pradesh Pollution Control Board, Shimla;

ix) Statistical outline of Himachal Pradesh issued from time to time by the Statistical Department, Govt. of Himachal Pradesh, Shimla;

x) 'State Bank of India in Himachal Pradesh', A Publication of State Bank of India Zonal Office, Shimla;
xi) Different Newspapers/Magazines/Journals for various periods carrying data relating to transport sector; and

xii) Other broachers/pamphlets/committee reports issued by the Central and State Govt. Authorities and many other related available study material.

**Primary Data:**

With a view to know the reactions of Goods Transport Operators in Himachal Pradesh and the Bankers financing them, a field study has been conducted and requisite information secured through the mailed questionnaires, observations and discussions.

**i) Questionnaires:**

The primary information has been sought on two fronts. Firstly, from the point of view of a Goods Transport Operator and secondly from the Banker's point of view. In the first place primary information regarding fundamental requisites of a goods transport profession and some pertinent information regarding operational aspects have been collected through mailed questionnaire method. The questionnaire has been designed to extract free and frank opinion of the Goods Transport Operators as far as possible. Subsequently, another questionnaire has also been posed to the Bankers who are engaged in financing goods carriers in Himachal Pradesh. The questionnaires for Bankers have been aimed at soliciting their views as regards financing of a truck loan proposal and behaviour of the borrower's account. Thus the analysis on the basis of both types of these mailed questionnaires has been
explanatory as well as exploratory. The mailed questionnaire method of collecting data has been adopted as the respondents are spread over a wide geographical area.

ii) Observations:

Certain informations have also been gathered through personal interviews and discussions with some of the available Goods Transport Operators, financing Bankers and Govt. officials who are directly or indirectly related to the transport sector in some manner.

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of Vehicles</th>
<th>In the State of Himachal Pradesh</th>
<th>Goods Vehicles financed by SBI in H.P.</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>1</td>
<td>HCVs</td>
<td>16684</td>
<td>1100</td>
<td>90 (8)</td>
</tr>
<tr>
<td>2</td>
<td>LCVs</td>
<td>2685</td>
<td>300</td>
<td>30 (10)</td>
</tr>
<tr>
<td>3</td>
<td>Total</td>
<td>19369</td>
<td>1400</td>
<td>120 (9)</td>
</tr>
</tbody>
</table>

Figures in parenthesis indicates percentages

<table>
<thead>
<tr>
<th>Total No. of Branches</th>
<th>Branches involved in financing Truck loan proposal, approx.</th>
<th>Sample Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>143</td>
<td>120</td>
<td>30 (25)</td>
</tr>
</tbody>
</table>

Figures in parenthesis indicates percentages

Sample Description:

Sample of 120 Transport Operators have been taken out of 1400 Goods Transport Operators financed by Branches of S.B.I. in Himachal Pradesh. Here the possibility of questionnaire being filled by an operator financed by a Bank other than the S.B.I. cannot be ruled out. 90 (8%) out of 1100 operators having Heavy
Commercial Vehicles (HCVs) and 30 (10%) out of 300 operators having Light Commercial Vehicles (LCVs) have been covered in the present study. As regards financing Bankers, 30 (25%) out of 120 financing Branches have been covered in the present study.

### Sample Description

<table>
<thead>
<tr>
<th></th>
<th>Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Every Goods Transport Operator who has been financed by one or another S.B.I. Branch in H.P.; and to the Existing S.B.I. Branches in H.P.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sampling Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>List as available from Bankers regarding Goods Transport Operators and secondly, No. of approx. financing Branches (Bankers) of SBI in Himachal Pradesh.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sampling Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Convenient Sampling Method</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Sampling Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>120 for Goods Transport Operators; and 30 for financing Bankers.</td>
</tr>
</tbody>
</table>

Since the present study is focussed on transport development in general and efficiency of goods transport operations in particular, the data and information collected for this purpose have been presented systematically in the form of Tables and the tabulated observations have also been presented in the form of diagrams which include bar diagrams and graphs.

As most of the questions solicit non-financial information and lays emphasis on analysing special characteristics & specific traits relating to the profession of Goods Transportation, therefore, the statistical tools have been used more effectively than the available financial tools in the present study.
Statistical tools:

With the application of appropriate statistical tools, it becomes convenient to arrive at & formulate appropriate economic polices and also evaluate their effect over a period of time. Thee statistical tools used in the present study comprise of correlation analysis and Chi-Square test (Chi-square at 5% level of significance).

a) Correlation Analysis:

The degree of correlation between growth of RRFF (Railroad Freight Flow) and other key indicators of economic development like Agriculture, Manufacturing and Gross Domestic Product have been analysed by using the method of correlation. In the present study, Karl Pearsons co-efficient of correlation has been used. This method is most widely used in practice and has been computed as:

\[ r = \frac{\sum xy}{\sqrt{\sum x^2 \times \sum y^2}} \]

Where \( r \) stand for Pearson Co-efficient of correlation. Furthermore, deviations of \( X \) series have been taken from the mean of \( X \) and denoted by \( x \), whereafter the square of these deviations have been calculated so as to obtain total \( \sum x^2 \). In similar way, the value of \( \sum y^2 \) has been obtained. Next, the deviations of \( X \) and \( Y \) series have been multiplied to obtain the total \( \sum xy \). And at end, the values of \( \sum xy \), \( \sum x^2 \) and \( \sum y^2 \) have been substituted in the above formula.

b) Chi-square test:

Chi-square test is a test which describes the magnitude of difference between observed frequencies and the frequencies expected under certain assumption. With the help of Ch-square test it is possible to find out whether such differences are
significant or insignificant. In the Chi-square test the only problem is to decide how the expected frequencies have to be arrived at. There is no hard and fast rule of it and the method of arriving at the expected frequencies would depend upon the nature of the problem. Chi-square and its interpretation are very easy and involve the following steps:

i) Calculate the expected frequencies and denote them by $E$;

ii) Find out the difference between observed and expected frequencies and denote them by $(O - E)$;

iii) Square the various values of $(O - E)$ and divide each value of $(O - E)^2$ by the respective value $E$;

$$X^2 = \frac{(O - E)^2}{E}$$

In other words, the value of $X^2 = \frac{(O - E)^2}{E}$

iv) Compare the calculated value of Chi-square with the independent value of Chi-square for the desired level of significance;

v) If the calculated value of Chi-square is more than the relevant Table value the difference between observed and expected value is construed to be significant. On the other hand, if the calculated value of Chi-square is less than the Table value, the difference between the observed and expected frequencies is not significant and is construed to have arisen due to fluctuations of sampling;

c) **Weighted average method**:

One of the limitations which arises if we compute the results on per cent basis only is that it gives equal importance to all the items. But there are the cases where
the relative importance of the different items are not the same. In such a case
weighted average method is simplest to understand and easiest to compute and so has
been used in the present study.

\[ \sum W_x = W \times X \]

Where the term W ‘Weight’ stands for weights attached to the variable values
i.e. \( w_1, w_2, w_3, \ldots, w_n \) respectively. \( X \) represents the variable values \( x_1, x_2, x_3, \ldots, x_n \). The weighted average has been obtained by multiplying the weights by the
variable \( X \).

2.2.6 Limitations of the Study:

To know the extent to which a study is reliable it is important to state the
limitations under which it has been conducted. The main limitations of the present
study are:

1. Apart from secondary data as utilised in this study, the primary data portion
confines itself only to the empirical overview of privately owned goods carriers
in H.P.;

2. As primary data is specifically related to hill State of Himachal Pradesh, which
predominantly depends upon roads as means of transportation, no statistical rail-
road comparison for H.P. State has been made in this study;

3. For the purpose of convenience of the respondents, this questionnaire has been
framed both in Hindi as well as English language. While the questionnaire for
the Goods Transport Operators of Himachal Pradesh has been posed in Hindi
language as per Annexure “A”, the questionnaire for Bank officials is in English
language as per Annexure “B”;
4. Since each and every goods transport units financed by any financial institution in H.P. cannot be covered under the study, the present study is mainly based on survey of Goods Transport units financed by State Bank of India in H.P. It is important to mention herein that S.B.I. has network of 143 branches covering each district of this State;

5. Though the questionnaire has been sent to each Goods transport operator financed by branches of S.B.I. in H.P. for the purpose of study, the total number of responses received is a limiting factor for the purpose of data compilation, its analysis and interpretation; and

6. Due to financial and geographical constraints, it is not possible to meet personally with each of the goods transport operators in H.P. to have a spot interview for the purpose of study.

2.2.7 Organisation of the Study:

The present research work spans over a period of 5 decades i.e. from 1951 to 1997 covering eight chapters. Chapter first deals with the introduction & origin of transport and Transport Resources of India. In the second chapter, different empirical work relating to India & abroad concerning the transport sector have been discussed in brief so as to find out the gap or limitations of these works. Consequently, the need, scope methodology etc. is designed to fill the gap in the earlier empirical works.

In chapter third, a detailed analysis has been made as regards development of roads & motor transport in India over the last five decades. The chapter number four summarises the impact of expanding transport facilities on the overall development of
the State of Himachal Pradesh. Fifth chapter gives an empirical overview of Goods Transport Operators as regards certain fundamental requisites of this profession. The operational aspects of Goods Transport profession have been discussed at length in chapter sixth. The seventh chapter throws light on the perception of a Bankers as regards financing a goods carrier proposal and also as regards the behaviour of a truck borrower's account. The last chapter briefs the whole work through the summary of the findings, suggestions and identification of areas for future research.
REFERENCES


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