CHAPTER 2

REVIEW OF RESEARCH WORKS

While social change as a function of infrastructural development is a very broad subject researched into various countries, the subject of social change generated by development in road transport is a very specific subject. Therefore, the present chapter aims at taking an overview of various studies relating to the infrastructural development and its impact on social life and then make a review of each one of the studies on the social impact of road transport development. Therefore the present chapter is split into four parts as mentioned below:

1] The first part deals with studies on infrastructural development in general excluding the development of road transport.

2] The second part deals with studies on the social impact of transport development in countries other than India – irrespective of road, air rail, water transport.

3] The third part deals with the directly relevant aspect of the research work namely studies related to the social impact of road transport development in India.

4] And the fourth part consists of the discussion on deals with the impact of other factors on transport development taking transportation as a dependent variable.

PART 1

Gvishiani, Djerman M in his work on evaluating the rule of UNO and UNESCO in establishing international relations observed that the international bodies and receptivity of European countries to international relations has worked wonders in terms of science, technology and
infrastructural development. Industrial specialization has led to development specialization and hence the continent-wide co-operation in transport communication, power(energy), public health and resource management.

Winston, and Denis studied urban growth in Australia taking a case of Sydney. He was of the opinion that a better urban planning includes an effective metropolitan Government, decentralization of urban services, a multi-centered metro-police catering to needs of the people over several hundred miles, large quantity of natural resources, compact residential neighborhoods with open spaces, co-ordination of place of work and place of residence and an integrated transport system. Thus the growth of infrastructure including transport has a bearing on the development of urban centers.

Gromyko, Anatoli Andreevich and Hozin G.S observed that growing co-operation among different countries is largely attributable to scientific and technological revolution including promotion of transportation and communication. Thus they observed that transportation has an advantage of bringing countries close to one another and making the world small and smaller.

Olende.S Arungu conducted a study on energy generation and consumption related problems in Africa. The author observed that Africa consumed energy only to the tune 8.4% of the energy consumption of the developed nations. Although energy consumptions for commercial purposes were slightly above this figure, the author came out with the fact that no sincere effort was made to generate adequate quantity of energy in the country. Political will to this effect was also weak. Therefore he suggested that an effective energy policy must be of international
nature involving the like-minded countries, but not limited to only internal resources.

Langlois, Simon studied Canadian society and tried to cover late items of household income expenditure with sources of household income. The author observed that the need and capacity to spend on transport, housing, leisure, food consumption, insurance and other such things increased with the increase in the sources of the household income.

Nonini, Donald M studied truck transport industry of Pecan - Tebu town in Malaysia and found that the concept of Chinese entrepreneurship in the industry should be studied in terms of its constituent elements like risk taking, innovation, property ownership. This study on entrepreneurship and industrial data on Chinese has reported the dominance of oligopoly, capitalagy in Malaysia and elsewhere in South - East Asia.

Leipert, Christian based on data related to Federal Republic of Germany, illustrated calculations for defensive expenditures on social costs of transport, rent, public order and security etc. and held that they should not be minimized.

Heredia, Iturbe, Francisco studied the social impact of expansion of the Mexican air transportation as a result of the super – imposition of the spaces. 3 categories of space were defined namely trunk – national, trunk – regional and regional - feed - line. This hierarchization initially resulted into different services in the air transport in the direction of fulfilling the objectives such as efficiency, profitability, privatization and
decentralization. The structural modification of air transport was found to be initiating changes in economic and social events.

Reichert, Christoph studied six villages in Egypt and reported that the oil wealth in the Gulf countries has drawn people from all strata of Egyptian society. This international migration has necessitated and facilitated for the development of the infrastructure such as small-scale manufacturing, service activities and transport.

PART 2

Shimokobe, Atsushi in studying the Japanese society, observed that regional imbalance is usually the result of development plans. This imbalance can be minimized by linking of different urban centers, large, medium and small through effective transport and communication facilities. Thus transportation contributes to balanced growth of different regions, an effect which is intended in all the development plans.

Craft, Michael and Lockwood, Hen studied sub-normal psychiatric patients admitted to hospital verses those not admitted to hospital. The hospital provided transport under its guardianship program to its patients, with result the patients could become normal individuals, where as patients not admitted continued to be so. In this case in Australia transport has worked with health care in bringing individuals to normal condition.

(Allen C Kelly studied economics of American population and observed that the growth of Infrastructure including the development of transport technology is the function of population growth because the population growth makes the goods and services in a locality scarcer and thus compels people to move to different places in search of them.)
Vigarie, Andre tried to analyze changes in the **mare - time** practice and the ports in Europe and observed that these changes as continuous phenomena and hence is difficult to study their implications. The study has four parts. The first deals with revolution in merchandise transports, development of modern ships and their automation. Particularly the evolution of larger ships facilitated for transporting foreign materials. In the second part he deal with the impact of transport development on port life in North Western Europe. Gigantism in the form of petroleum, steel or other such industries on the coastal line further contributed to the rail and cargo transport. Thus transport development and socio – economic development reinforce each other,

Murdock, George P and Provost C, who contributed a lot of scalogram analysis, identified several hundred trades characterizing any society. They grouped these trades into ten groups, among which land transport formed one. Thus they argue the mode transport can be used that as characterising a community or group of people.

Fedorenko, Nikolai Prokof Evich analyzed the methods and results of an economic experiment or planning process conducted on the transport system of Moscow City, using econometric models and computer methods. The experiments introduced a new set of economics indices such as profit and profitability. The author was of the opinion that these two indices are contradictory to each other. He came out with an observation that advanced enterprises are less likely to go in for advanced technology.

The study Siddall, William R is pessimistic about the impact of transport development on environment. Transportation may have lot of economic gains in terms of providing employment, market and a desirable exposure. But equally
important is the social cause of transportation in terms of environmental degradation. He examined the early English and American development of roadway cannels, railroads, motor highways, air transport, electric power – lines etc. He came out with findings that the transportation poses a thread to the physical well being. It makes us uncomfortable, unhealthy, short - lived, nervous, irritable, neurotic, violent, suicidal and menace to aesthetic values.

Visaria, Pravin conducted a sample survey in greater Bombay using census data. The percentage among females is naturally greater than among males because of migration for marriage. It is the tone of 45%. The transportation has facilitated for all kinds of migration among males and females and in particular many of the Urban to rural migrants are primarily traders and persons providing transport and other essentials.

Vickerman, R and W Vic Kerman’s conducted study in UK which tried to co-relate transport development with recreational projects or facilities. They observed that the recreational facilities, though could cause noise are other inconveniences to some people, would compel the extension of transport facilities, which benefit trading, commuting and shopping. They also dealt with the development of modeling, attributable to the transport facilities.

Jenness, R, A studied Canadian migration and immigration in USA and observed that migration, immigration are largely dependent on sequence of development and absorptive capacity of a nation. She reported that geographic mobility of labour is influenced by transport and communication casts, Greater the costs, lesser the mobility and vice – versa.
Currie, Lauchlin conducted a study in UK, in which the researcher tried to co-relate urbanization with the development of essential services especially the transportation. He was of the opinion that an effective national development policy planned must facilitate for Urbanization and transport development, so that quality of life, public land ownership and city clusters see desirable changes.

Kruijt, Dirk and Vellinga, Menno studied Peruvian mining sector in Netherland from 1902-1974 which consisted of mining, processing and transport sectors. They tried to diagnose 59 strikes that occurred in these 3 sectors. The effectiveness of strike was found to be dependent on the transport factor, among other reasons, which are political, economic, racial etc..

Efinov, V.T and Mikeran, G,T brought out proceedings of a special seminar held in USSR in 1975 on the social problems created by increasing the road transportation. The consensus of the seminar was automobile used and the individual transport in large cities should not be allowed to grow because they create several social, psychological, economic and environmental problems like these:

1] Development of system of renting out vehicles, which is a contributing factor for capitalistic growth.
2] Egotism, hatred, indifference and neglect of work or duties on the part of drivers.
3] Since car ownership is a symbol of status, people would prefer to give up their cultural necessities. They develop antisocial activities leading interpersonal conflicts and also a need for greater labour force from outside which is not always desirable.
Peyrega, Jacques analyzed the role of transportation in Planned development and also in the creation of International relations. Examining the relationship between capital and transport, the researcher felt that transportation should be in the hands of national government, so that it provides fast and efficient linkage of production and industrialized centers. It carries away raw materials and dumps back mass of produced goods in the underdeveloped countries and thereby destroys local industry. To be able to negotiate on equal terms, with developed countries the developing nations must have their own transportation systems which either provides an easy access to market or develops national monopolies in raw materials or produced goods. Creation of third world power is also possible through planned economies and re-oriented transport system.

Glassner, Martin Ira observed that at least about 14 of the landlocked countries are the poorest of all. Political factors and lack of transportation came in the way of moment of better amenities and skilled personnel.

Frobel, Folker, Heinrichs, Jurgen and Kreye, Otto studied the negative impact of export oriented industrialization in under developed countries such as Latin America, Africa and Asia. This was mainly due to the development of transport which could relocate industries according to the availability of cheap labour but not according to the availability of raw materials. Thus it produce structurally uneven, unbalanced and dependent socio-economic development, which is not sustainable.

Palvolgi, Istvan PAL studied rail transport system in Hungary. The Researcher observed that technological developments in railways regulated the position of chief-guard. In the sense of new values could be operated
only by a railway engineer, as a result of which status, income, responsibilities and job satisfaction increased in the case of engineer, but declined in the case of the railway guard, but on the whole the technological development has brought about positive changes on the Hungarian economy.

Due, John F studied problems of rail transport in African countries like Sudan, Uganda, Tanzania, Kenya, Zambia, Nigeria, Ghana and other countries. He reported that the first rail lines generated - social impact so much so that the subsequent railways could not do so much . And rising expenses, falling profits and transition to deficit positions, made people feel that road transport is cheaper, safer and better than the rail transport, particularly in Nigeria and Zambia political events also interrupted the rail service.

Van Onsalen, Charles, Johnstone, Frederick and their associates studied gold production and its impact on transport and other aspects of the African economy. Spurt in the gold production led to improvement in transportation and thereby migration of blacks (Negroes). Emigration of the local people and in - migration for employment of outsiders increased sex crimes, business crimes, alcoholism and unhealthy Politaranization.

Rodriguez, German studied the demographic impact of transportation in five countries, namely Columbia, Costa -Rica, Korea, Malaysia and Nepal. Travel time, means of transport distance to actual users of these services had a direct bearing on family planning and the contraceptive practices.

Brodsky, David A. and Sampson, Gary P studied export performance on basis of transport and trade in developing countries. They found that export was directly dependent on level and efficacy of the transport.
Bromley, Ray and Wyon Rachel.M studied market situation in California in relation to the transportation. They visualized a disadvantageous transport pattern, which lacked planning. Wherever the market forces needed an effective transportation, it was not available and hence the researcher recommends for planning the transport to create or maintain the market.

Sampson, Cezley I studied transport development in comparison with other infrastructural development in Jamaica. He found the transport development is slow when compared to development of other infrastructural facilities, because transportation needs a broad base of multidimensional activities, while other infrastructures may not need to be multi-dimensional. Balancing broader national interests with economic and operational efficiency is possible for reconstructing and modernizing the transport sector.

Soref, Michael J studied drug markets in US in relation to drug transport, effectiveness of law enforcement and degree of addictiveness. He made and tested several hypotheses relating to the association among these variables and found that transportation has a definite role in the spread of drug market and drug addictiveness.

Fendall, N, R, E studied health in relation to certain social and transportation as factor. Limitations in transport and coordination among other reasons, lead to hindering the utility of primary healthcare in Third World countries.

Conley, Dennis M. and Heady, Earl D studied improvement in the truck transportation and its impact on farm income in Thailand. They observed that the improvement in transportation reduced the unit cost of transport with the result that the income prospects for long distance transport are enhanced.
Liang, Ernest P L made an econometric analysis of the relationship between access to transport and access to regional markets. He also observed that investments of other countries on Chinese transport did bring about some positive changes in the traditional economy.

Pirarski, Alan E studied transportation in US and found that the gain from the transportation was not in proportion to time and resources invested in transportation. Developing some social indicators for comparing different transport modes in terms of commuting costs, energy efficiency, intercity freight moments, trip speeds, city sides and rectification, the researchers found that relatively little is understood about the motivations to travel and benefits derived.

Zhelezko, Sergey Nikolaevichi and Chinkova, Alla Evgen Evna studied 31 transport enterprises employing more than 50,000 workers in Moscow city. He developed a mathematically based system of indices of adaptively and efficiency of the transport industry. And he observed that this kind of analysis would help to solve several problems related to social planning.

Waterlow, Charlotte studied peasant communities in Third World countries and observed that under the impact of the modern transport and mass education through mass media, the consciousness of peasants has increased. A farmer has come to know about utterly different life lived by people in modernized societies. Unemployment and psychological alienation are discussed as common phenomenon in modern developed societies.

Thompson, Carol B studied Zimbabwe which is a developed economy among the SAARC countries. The increasing market size and priority to build new transport and communication has developed Zimbabwean development.
Leinbach, Thomas R studied rural transportation in Indonesia and its impact on the physical and social mobility of people. Trip activities, transport ownership, internal transport, upgraded transport structures have been changing and affecting both remote and nearby places.

Harris, Nigel analyzed the economic activity and space as physically bounded. In urban areas key spatial configurations namely transport terminals and junctions, industrial streets; markets affect the use of place. Therefore a plan for the use of space can also be a plan for the use of the commodity transport.
Langhammer, Rolf J studied freight rates and tariff rates of imports in Brazil. He found that freight rates were advantageous for manufactured products. Tariff rates hindered imports of raw materials from developing countries much more than do freight rates.

Frishman, Alan studied the development of Cano city in Nigeria in relation to the development of transportation. He found that people tried to minimize their traveling costs by traveling on foot or by bicycle, but as their incomes increased they tended to use motorized transport, which led to the rise in the numbers of centers of activity. Urban planners and the traffic engineers also encouraged channeling of funds into roads, rail lines and mass motorized transport. The study emphasized certain transportation needs like sidewalks, crosswalks, stop lights, bicycle lanes, and bicycle parking facilities.

Bradbury, J H studied transport in relation to inter-nationalization of capital and market. He found that refinements in the technology of transport, technical accuracy of the machinery and flexibility and mobility of labor and capital increased the international relations.

Heston, Alan and Hasnain, H studied camel transport in Pakistan. He surveyed 102 owners of camels and reported that prices and transportation of camels are cheaper than mechanized transport both in congested urban areas and parts of rural Punjab.

Barat, Josef studied public and private transport in Brazil. Public transport primarily depended on buses and share roads with private automobiles. Poverty and low vehicle-population ratio have necessitated for public transport. The study has dealt with the roads of heavy and light vehicles, rail, water and public road transportation. The researcher came out with the
suggestions of integration, private transportation with public transportation and need for national urban transport policy.

Ruppa Pesnel, Mme in his study of multi-model transport in France, revealed that international market and its competitiveness is directly dependent on these modes. The researcher predicted that by 2000 vast market horizons open for transport architects and integrated transport systems would develop to create international bonds and International co-operation efforts.

Dezert, Bernard studied water transport in the context of France and revealed that container transport changed sea traffic leading to specialization of ports in terms of size of containers and creation of fast transit services. The study reveals also that port and commercial functions got separated from urban limits, although logically sea transport depended on urban affairs.

Gottmann, Jean also conducted study in France in which she tried to link sea trade with the international economy. The very construction of Industrial and commercial projects near sea board or ports is the clear indication of this relation.

G.T. Arosanyin: Studied transport development in Nigeria and found that share of bank credits in this is not fair. Nominal share of credit allocation is expected to increase in future. This share is also declining and hence transport sector is not able to contribute much to national development.

Suleiman T.I.Ai, Saeed M.A. And Widdup J studied road transport improvements in Dubai. such improved roads were based on the procedure that included design charts giving as – phalt overlay thickness of the roads, which can take past traffic loading and remaining structural life into account and can address straight overlays, mill and replace this overlays.
Klaus Conrad studied the case of Germany and found that road and rail transport could function complementarily to each other particularly in respect of good transport. For example, the rail authorities can own some trucks and urban truck transport system can work with the rail authorities in order to maximize the welfare and utility of infrastructure.

Terry Barker and Jonathan Kohler studied goods transportation in relation to road freight in Europe. He found that a tax on the road freight DRJ 10km could benefit the European economy and part of a revenue natural fiscal package. As the road freight decreased, industrial output increase resulting into increased income and its natural socio-economic impact.

Robert B Noland studied transport system in USA and found that construction of highway and growth of traffic are positively associated, the manifestation of which would be seen in things like road shifts, route shifts, redistribution of trips, generation of new trips and longer trip. This corresponds to the theory of induced travel demand, which states that increase in highway capacity will increase the road traffic.

G John studied 380 households of the south Perth city in 1997. The study observed that car trips for marketing purpose should be substituted by travel alternatives like walking, cycling and use of public transport trips. The individualized marketing is a major travel behavioural change adopted in the Travel Smart 10 Year Plan Program.

N Gallin studied Western Australia, which aimed at developing guidelines for assessing the level of service of pedestrian facilities. This is linked directly to mobility comfort, safety, pedestrian friendliness of the routes or paths etc.
Pradeep Singh Kharola, Bipin Gopalkrishna And D C Prakash studied city transport in Bangalore metropolitan and reported that monitoring the punctuality increase the efficiency of the transport service. While manual monitoring was found to be inadequate, modernized technology of RF-ID system could be used as an effective and a scientific system monitoring.

Jonathan Richmond studied new transport capital expenditures on urban road transport system in USA. The researcher found that evaluation of these investments should not be only in terms of needs and estimates but also taking the whole range of factors related to it. He reported that our enquiry should start with the study of needs.

Glenn D Lyons dealt with the systems of traveler information in UK., which has become a part of Government priority areas? And he was of the opinion that Information of all modes of transport should be made available across different public transport modes. He considered the prospects of providing multi–model information to travelers, so that they could make their choices easily and economically.

Rune Elvick studied safety aspects of urban road transport on the basis of 33 studies. Devices like speed cutters, separation of residential streets from roads, etc., as the study revealed, reduce the incidents and accidents.

Yves Page studied 21 OECD countries at two points of time mainly in 1980 and 1994, and found that in some countries like West Germany, Switzerland, Australia, UK and France there was decrease in road mortality. In contrast to them countries like Japan, Greece and East Germany experienced increase in the road death rates.
PART 3

Mumtaz Begum A Thaha conducted a study on enrollment in degree college in Cochin city and tried to provide spatial model. She was of the opinion that centers of population, distance between such centers and the likely interaction among them are the main factors, which influenced school environment. In particular distance became a problem when there was a difficulty of travel or non availability of any mode of transport. Thus the transport worked among other reasons a determinant of the educational behavior.

Parikh, Kirit S and Srinivasan, T N, in their study, revealed that transport, agriculture and household subjects constituted as much as 55% of commercial and non – commercial energy consumption.

Broeze, Frank studied shipping transport during the British rule in India and found some advantages of British ship owners and ship builders over the Indian shipping industry. And the enabled the British to destroy the autonomy of the Indian shipping industry and take over the overseas trade. This enabled the British Government to not only encroach the Indian boundaries but also to useup the political authority of India.

Patankar, P.G studied road transport in India made a survey of road transport as well as urban transport in India. He held that transport facilities are the only means of communication to reach more than 6 lakhs villages of the country. Therefore, it is necessary to gear up the development of road transport to reach the benefits of development plans and project to every nook and corner. He dealt with operational productivity and efficiency, managing aspects of road transport. He found that transport technology should be ever changing
and it should help the nationalized transport sector to move forward and play its intended role in the country. This study is based on secondary data and several reports relating to transportation in the country and hence is not based on field work methods.

While Patankar, Simha Veeraraghavan and Satyamurthy made case studies of Bombay and Bangalore city, Umrigar, Sikdar, Khanna and Viton tried to access efficacy of the performance of these systems. Ranganathan tried to project the urban transport needs for 2021. Maunder and Mbara felt the need for liberalizing the transport services and involving the private sector. Thomas dealt with internal mobility problems of urban dwellers and reported that the lack of transport services during peak hours creates lot of problems for Urban based employment.

Prasad M N, Raghabendra Jha, And their associates studied different aspects of Indian railways. Prasad felt the need for gauge conversion to increase the efficiency of the railway services and also to meet the requirements of the growing needs.

Jha and Singh assessed the technical efficiency of the Indian railways from the point of view of cross sections of people, agro-climatic and physical environment.

Dalvis seminar paper debates on the privatization of the rail transport. He observed that at - least for the rail transport privatization should not be encouraged. Jay dealt with the economics of railways particularly the cost-benefit analysis and reports that a careful planning would give more advantages than disadvantages.
Sastry, K N T talked about how state transport corporations could be monitored and regulated. Lack of control on them did not contribute anything to the process of development. Instead it relegates the transport sector to a huge consumer of public finance.

Gundam Rajeshwari studied state road co–operation in India, which is more an evaluation study, then a holistic research work. She assessed the performance of this co–operation and reported that proper planning and management aspects of the co–operation need to be improved.

Gupta, M P studied city transportation in India, particularly in a metropolitan city. He dealt with the organization and functioning of the city transport systems and their impact on the urbanization.

Ramanathan R And Parikh Jyothi, K studied transport development in India in relation to the process of socio–economic development. They found that transport development is both a cause and an effect of the process of development. As an infrastructure, it initiates physical and social mobility of people and also as a dependent variable it changes to suit to the changing needs of society. Thus effective planning of transportation helps for the sustainable development of the country.

C. H. Hanumantha Rao, And M. G Pathak, gave an altogether different prospective of the road transportation in India. They pleaded for nationalizing the state transport systems and thereby ultimately leading to the formation of national policy for road transportation. Public utility services like road transport should not be left to the vims and fancies of the private sector.
Mishra, R K And Nandagopal K conducted a study in Tamil nadu and found that organizational and managerial improvements can increase the efficiency of the passenger road transport. The decentralization and effective monitoring will help the transport system as well as its users.

Contrary to Thomas M K who was totally against privatization of road transportation, Jagdish Gandhi is a staunch supporter of privatization. So long as road transportation is left only to the public sector, linking remote and interior places to the main stream will be difficult. The public sector transport service functions with the spirit that it works for no gain to the persons operating or controlling. On the other hand the private sector makes the proper survey of the proper needs and operates its services accordingly.

Thomas M K wrote several papers on different aspects of road transport in India. In two articles he made a review on the adequacy and relevance of Motor Vehicles Act 1988 and motor vehicle insurance. He also wrote about energy crisis in the urban transport systems and emphasized the need for economically viable alternatives. In this context he pleaded that the urban transport should not be handed over to public sector services without which transport tends to be more costly than beneficial. So he also listed/identified various road safety measures such as humps, transport signals, fly–over, level crossing and the like.

Gopalakrishnan,C studied the impact of economic reforms such as land tenures, developmental programs, liberalization, globalization etc, which have a direct bearing in the level of development of the state road transport
undertakings, How-ever, the development of road transportation re-inforces the processes of economic development.

Gawhane, S H also studied the cost-benefit aspects of state transport undertakings and suggested some measures for increasing the advantages to the undertakings. Some of the general problems of state transport like non-availability of pukka roads, national and state highways are the real issues to be taken note of for strengthening the undertakings.

Mekoth Nandakumar Goa study, comparing private and public sector services suggests that the co-ordination between the two sectors ensures quality because of some built-in competition among them. As the two sectors grow simultaneously, they tend to be supplementing the process of economic development. Therefore he suggested that with profit not by suppressing the private sectors but by encouraging the competition and co-ordination among two sectors.

John Gunaseelan also dealt with the performance of state road transport cooperations in India in comparison with the private sector transport. He observed that co-ordination between the public and the private sectors is necessary but is always neglected. With the result that people get access to either both or they lack both in which case the transport widens the inequality between the pockets with transport linkage and the pockets without it.

Agashe, L G studied state transport undertakings and found that the state alone cannot fully finance the road transport. Investment in highway construction and provision of buses to all parts of the road linkage is possible, if private sector is also involved in it.
Mr. Bagade’s study of state transport undertaking in India analyzes the economics of these undertakings. He identified the areas through which cost of transport can be controlled or minimized by identifying peak hours, short cuts and the adjustment of the time – table etc.

Ganesan’s paper analyzed the various factors that influence the transport facility in the country. These factors include availability of metal-led roads; centers of market or education which are of importance. Agro –climatic conditions, proper monitoring and co-ordination of private and public sector services so on and so forth. Transport development becomes really functional when it is viewed as related to all other aspects of life.

J Gowda Made’s critical analysis of the impact of constitutional or subsidized service on the financial position of the state road transport corporations shows that these corporations have to be service mode oriented. They cannot be allowed to be sick in terms of resources to expand their services. This dilemma is the main reason for some of the transport corporations to run under loss.

Padam S tried to understand the present scenario of the road transport in India in terms of modes of transportation, public sector and private sector considerations, relevance of transport rules and practical utility aspect of transport services.

Patkar V N analysed the road transport development and found that it is based on secondary and macro level data on the growth road transport in terms of percentage of road mileage, number and types of vehicles plying, frequency of vehicular movements, costs and benefit of road transportation.
In his study of public sector bus transport in India, M K Thomas did an in-depth analysis of a physical and financial performance of 32 major road transport corporations in India. It is a macro level study based on secondary data in which he has made cross-sectional comparison in respect of three types of operations namely rural, hilly region and urban services. He has also provided an overview of rail transport and inland water transport.

Sudarsanam Padam paper is a general discussion related to profitability and productivity of state transport undertakings. He is of the opinion that these things should be interpreted keeping in view long term sustainability of economic viability. Senior managers should look at their role as enablers of decentralized administration but not as centers of power.

S V Sudevan, N Somashekar and R Srinivasan studied 3 routes namely Bangalore-Chennai, Bangalore-Coimbatore and Chennai-Coimbatore roads on which air, road and rail transportations are available. Based on the empirical analysis of the inter-model choice for the sample of high density roads, the paper provides interesting insights into the dynamics of short haul travel and demand and supply issues. This found that significant trends in inter-model choice have been observed specially on short haul routes where developments in the rail, road and air transport have provided better choices.

K K Dewan, M Mustafa and Pratima Mishra studied the impact of transport system particularly the air pollution aspect is New Delhi keeping in view the vehicular growth and vehicular density. The study reveals that if the air pollution is to be controlled average speed of the vehicles should be curtailed. Enforcement of emission test and fuel quality, however, has prevented the Delhi city from going worse in respect of air pollution. He also
listed various heart problems, respiratory problems, brain damage, birth defects, apart from the adverse impact on animal life and plant life.

M V Bagade reveals that options like suburban and metro rails, city buses and hired vehicles assume significance in view of heavy conversion, poor speeds on road, road safety of citizens, suffocating air pollution and noise pollution. Since transport is a public utility, central and state government state transport undertakings, local self governing bodies should take up the responsibility and he came out to with the conclusion that cities are going to suffer for want of efficient city bus systems.

S R Tapade and R B Barpatte analyzed the consumption of leaf springs in state transport undertakings. The consumption of these springs during 5 years period 1994–1999 year-wise is attempted. The study reports that road testing of the vehicles ensures their quality.

Jadhav studied the Maharashtra state road transportation corporations and central workshops in Bombay. Industrial safety aspect of the central workshops in terms of cleanliness of the surrounding, floor level house keeping should be ensured.

N Ramasaamy’s were a review of the performance of state transport undertaking on physical and financial parameters. The report studies rural hill region and urban transport services. The report observes that the state transport undertakings increase their review during this quarter and a reduction of the loss to the extent of 0.83% was noticed.

M Bindhu and R Sathikumar studied the usage of bus trips in Thiruvananthapuram in Kerala. The researchers reveal that cost and time of
travel are the traditional considerations of bus journey. But new considerations such as reliability, safety, comfort and convenience are gaining momentum recently. The researchers describe psychometric scaling technology for quantifying the relative value of these abstracts.

Sanjay Kumar studied 9 state corporations in India namely Maharashtra, Andhra-Pradesh, Karnataka, Gujarat, Uttar-Pradesh, Kerala, Rajasthan, Madhya-Pradesh and Punjab and found that these corporations experienced technical progresses and the cost savings from this progress seem to be significant. This is more so with larger corporations as compared to smaller ones. However it does not mean that larger are relatively more cost effective in comparison to their smaller counter parts, since average costs depend not only on technical progress but also on many other factors such as input factor prices, output levels and operating characteristics.

Ravi Kumar Reddy C studied urban transport in 5 cities namely Delhi, Mumbai, Vadodara, Surat and Ankles war. The study reveals that dependence on liquid fuel and air pollution are drastically increasing and causing several health problems like respiratory diseases. The paper talks about CNG [cylinder installation] as an alternative energy which has significantly reduced the hazardous impact on the environment. Although CNG is a safer fuel it needs special attention to avoid gas leakage.

N Mittal and S M Sarin studied encroachment of main roads in New - Delhi for purposes like on – street parking, footpath trading, mobile restaurants and hotels, dumping of building materials, conduct of weekly processions, bazaars rallies, encroachment by street cobblers and sundry vendors etc. This encroachment has positive impact on service in terms of delay in reaching the destination, traffic jam.
A Kamalakar emphasized the need for fuel efficient and emission efficient automobiles in the context of increasing traffic density and depletion of conventional fossil fuels. The paper attempts to trace the evolution in technologies of the automobiles. In Europe and USA almost all the car and bus manufacturers are involved in continuous research in technology of automobile engines.

Y Satyanarayana dealt with the daily experiences in respect of replacement of diesel engines. Emission free and fuel efficiency should not be the only criteria for the substitution of these vehicles. Instead, concrete experiences of Delhi and certain other parts of the country need to be taken note of before popularizing the CNG.

Jairaj’s paper talks about the Karnataka state Road Transport Corporation in terms of 10 points program adopted to improve the services reduce the cost and thereby improve its financial position. These 10 points include:

1] Zero cancellations in schedules and rationalization of schedules.
2] Improvement in regularity of services.
3] Vehicle utilization - increase by 10% in daily kms/bus.
4] Daily revenue increase by 20% over the previous year.
5] Reduction in cost to less than 10% over the previous year.
6] Marginal improvement by 5% every month.
7] Bus stand cleanliness
8] Vehicle upkeep.
9] Business plan for each division.
10] Harmonious employee relations for improved productivity.
The researcher pleads for a periodic performance by experts in order to be functional to the society.

T Suri Babu studied the use of electronic equipments in transport undertakings particularly for reservation, cancellation and other economic process. He studied California based get - there company and observed that this has increased enormously the passenger traffic and also their satisfaction and confidence.

D T Jadhav and B S Raje studied engineering aspect of the bus body building. Luxury, super – deluxe, Volvo, minibuses, Express buses are some of the types of buses which are different in their body building. Authors have found that passengers’ needs when are taken into account in the body building it greatly help the efficiency of bus transport.

T S Reddy, Santosh A, Jalihal, A N Ramalingiah and J Nataraju studied the traffic on NH8 near Manoharpur in June 2000 and counted the number and types of vehicles used in that highway per day. So particularly when the highway is put to mixed use, such an assessment helps to evaluate the utility of the highway. The installation of the machine called traffic-counter-com-classifier, which works round the clock, illiterates the accuracy of classified and total counts.

G Sateesh, N Madhu, and R Sathikumar observed that global positioning system [GPS] is a satellite based surveying system wisely used in navigation, Geodetic control networks, crystal deformation studies, cadastral surveys, creation of GIS data bases, time services etc .The researchers emphasize the
need for this system in the case of rail transport to track and monitor the moving train from the base station in order to maximize the utilization of transportation infrastructure. It also underlines how efficient and eco-friendly the systems are, when implemented in the Indian railways.

- Sardesai studied 16 selected state road transport undertakings in India. On the point of view of bus depots and workshops he observed that reducing the cost and increasing the efficiency are possible through the adoption of few contraceptions namely - In-situ brake Lathe, Aerosol Maintenance products, Pneumatic tools, Garage equipments, clean rooms, Portable bus washing machines, Japanese management techniques. He observed that these are highly capital incentive, they have a package of benefits immediately reapable.

Pankaj Munoli dealt with the problem of noise in the driver's cabin of buses and trucks. He reported that sound proofing of the driver cabin by using Acoustical absorbers, sound barrier and multilayer composites material is necessary for increasing the efficiency of the vehicle driving. This will improve the wide comfort of driver, safety of passengers and reduces simultaneously fatigue of the driver.

Research gaps from the foregoing survey of literature on transportation in India and elsewhere are clear that the existing studies have mainly focused on the following aspects of transportation.

1] Engineering aspects of the vehicles related to efficiency, speed and safety.
3] Operation of the city transport systems.
4] Simultaneous functioning of the public and private sectors and the need for their co-ordination.

5] Social costs like transport accidents, air pollution, health hazards etc.

6] Involvement of multi- national companies in air and rail transport and enlargement of market to the establishment of the world market.

7] Increasing the International relations as a result of increase in the transport.

Thus it is clear that a very important aspect of transport namely is social impact is not covered or covered adequately by the existing studies. Transport as a functional need of the society needs to be continuously fulfilled and developed in proportion to social needs. This being the case the following aspects of the social impact of road transport need to be studied.

1] Assessment of the social needs for road transport and the actual fulfillment of these needs by the transport development.

2] Comparison of transportationally developed and backward rural areas.

3] Comparison of public and private transport services.

4] Comparison of the pockets developed and relatively non-developed pockets in respect of transport development.

5] Study of the impacts of the transport at the grass routes level by using sociological methods of field work and analysis.
Notes and References

Dalvi, M Q should the Indian railways be privatized? paper presented at the conference on Rail Tariffs And Economic Development, organised by the Railway Fares and Freight Committee, Ministry of Railways at Bangalore (92)


Patankar, PG “Road Passenger Transport In India” in [Pune: Central Institute Of Road Transport (Training And Research)], 1985.


Thomas M K ; Motor Vehicle Insurance, Financial, 23.9.89.

Thomas M K; “Road Development Miles To Go,” Economic Times, 16.1.89.

Umrigar F S, Sikdar P K and Khanna, S K “Performance of Urban Transport Systems In India Under Different Ownership Structure” Proceedings Of The


Bagade, M V, “ Key Result Areas For Cost Control In STU’s”, Indian Journal Of Transport Management, Volume 23, Number 1, January 99.


Craft, Michael and Lockwood, Helen, “A Guardianship Program of Community Care For The Sub – Normal”, Community Development Journal,1972, 7, 2, April, 142 – 146.


Fedorenko Nikolai Prokofevich, “Methodological Problems In Improvement Of Controlling The Economy, Methodologicheskie Problemy


Leinbach, Thomas R, "Transport Evaluation In Rural Development: An
Indonesian Case Study", Third World Planning Review, 1983, 5, 1, Feb, 23 –
35.

Liang, Ernest P. L, “Market Accessibility and Agricultural Development In Pre-
War China”, Economic Development And Cultural Change, 1981, 30, 1, Oct,
77 – 105.

Maunder, Dac and Mmbara, TC, “Liberalization of Urban Public
Transportation Services: What Are the Implications”, Indian Journal of
Transport Management, Volume 22, Number 3, March 1998

Mekoth Nandakumar; “Quality Of Service In Passenger Road Transport – A
Comparison Between Public And Private Sectors With Reference To Goa”,
Indian Journal Of Transport Management, Volume 21, Number 6, June 97.

Meier, Richard L, “Multinationals As Agents Of Social Development”,

Mishra,R K and Nandagopal K, “Efficiency Through Organisational
Innovations In Passenger Road Transport. The Case Of Tamil Nadu Road
Transport Undertakings, Management Review, Volume 16, Number1 And 2,

Mittal N and Sarin S M, “Economic Impact Of Encroachment On Delhi Roads -
A Case Study In India”, Indian Journal Of Transport Management, Volume

Mumtaz Begum, A Thaha “Prediction Of Student Enrollment In Colleges By A
Modified Spatial Interaction Model”, Behavioral Sciences And Community

Murdock, George P and Provost, Caterina, “Measurement of Cultural

Nonini, Donald M, “Some Reflections On Entrepreneurship And The Chinese
Community Of A West Malasian Market Town”, Ethnos; 1987, 52, 3-4, 350 –
367.

Padam, S Transport Sector In India: “The Present Scenario”, Indian Journal Of
Transport Management, Volume 23, Number 11, November 99.


Reichert, Christoph, “Labour Migration And Rural Development In Egypt: A Study Of Return Migration In Six Villages”, *Sociologia-Ruralis*, 1993, 33, 1, 42 – 60.


