CHAPTER – I

RESEARCH METHODOLOGY AND DATA BASE
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1.1 INTRODUCTION
1.2 ORIGIN OF PASSENGER ROAD TRANSPORT IN INDIA
1.3 URBAN TRANSPORT AND CITY EFFICIENCY
1.4 INDICATORS OF EFFICIENCY
1.5 PUBLIC TRANSPORT SERVICES IN NAVI MUMBAI
1.6 NAVI MUMBAI MUNICIPAL TRANSPORT (NMMT)
1.7 NEED OF THE PRESENT STUDY
1.8 OBJECTIVES OF THE PRESENT STUDY
1.9 HYPOTHESIS
1.10 DATA BASE AND RESEARCH METHODOLOGY
1.11 SAMPLE DESIGN OF THE STUDY
1.12 DATA COLLECTION - PRIMARY DATA
1.13 DATA COLLECTION - SECONDARY DATA
1.14 DATA ANALYSIS AND INTERPRETATION
1.15 SCOPE OF THE STUDY
1.16 LIMITATIONS OF THE STUDY
1.17 OUTLINE OF THE STUDY
1.1 INTRODUCTION:

Transport is the backbone of the economy of any country. It is indispensable for economic and social development. Transportation has brought the world together. It carries ideas and inventions to the people of different countries and has considerably contributed to the evolution of civilization. Though the demand for transportation is not so fundamental in human nature as the demand for essential commodities, yet “it is an indispensable part of culture, as the hallmark of civilization”

The Transport is categorized as

a) Land Transport: (i) Rail (ii) Road (iii) Tram
b) Water Transport: (i) Inland (ii) Coastal (iii) Overseas
c) Air Transport: (i) Internal (ii) International
d) Pipelines
e) Miscellaneous (i) Trolleys (ii) Elevators (iii) Parachutes (iv) Sledges (v) Spacecraft.

1.2 ORIGIN OF PASSENGER ROAD TRANSPORT IN INDIA:

From the time immemorial, man has traversed vast stretches of land on his own two feet in search of food, water and shelter. Tracks on which men and their families trodden repeatedly became the original paths, out of which has grown the present road network. Later on, man discovered the use of animals like bullocks, camels and horses. The use of them for transporting himself, his family and belongings over longer distances. The invention of wheel revolutionized the concept of transport and making possible speedy and
comfortable travel with wheels fitted vehicles. For a long time afterwards bullock-carts and animals like horses, donkeys and camels remained the only means for carrying the goods, men and their families from place to place till the invention of railways and automobiles.

1.2.1 Mechanized Passenger Road Transport in India:

The role of mechanized transport in India started in the beginning of the nineteenth century and the first motor vehicle was imported to India in 1898. In the earlier years it remained a novelty and luxury meant for rich. With steady increase in the number of vehicles followed the enactment of several Provincial Acts to control and regulate their movement to safeguard the lives of pedestrians and their registration. The Indian Motor vehicles Act 1914 was the first all India enactment dealing with control over the operation of vehicles.

The growth of road transport in India actually began in the early 1920s as a result of the diversion of surplus army vehicles to civil market after the First World War. The growth was unprecedented and by the end of 1920s there were a large number of vehicles operating in various parts of the country. The mushrooming of private vehicles led to unhealthy competition and even rate cutting among operators. Having realized the evils of unbridled competition the Government made various attempts through legislative and administrative measures to control the multiplicity of bus operators but without any appreciable result. The Indian Motor Vehicles Act 1914 could not cope up with the unexpected pressure and the Government was forced to supplement the existing Act with various enactments to control and regulate the transport industry within and in relation to the railways.²

1.2.2 Enactment of Road Transport Act 1950:

Having failed all attempts to organize small bus operators into bigger units the government had to bring out the Road Transport Corporation Act 1950 enabling the state Government to form Road Transport Corporations in the public sector. This Act not only provided for a monopoly in road transport but a monopoly of Government ownership and operation of transportation also.
The Government with this Act not only became a regulator of State Transport but also an operator, operating alongside several other small operators. This created problem since the existing Motor Vehicle Act did not recognize the measures of nationalization and was not framed to discriminate the operators from one another.

1.3 URBAN TRANSPORT AND CITY EFFICIENCY:

Many cities in India have grown at an unprecedented rate in recent years, and this growth is expected to continue in the foreseeable future. Fast growing cities in India have nurtured business and industry and have provided jobs and higher incomes to many migrants from rural areas. Thus, it is important that cities function efficiently - that their resources are used to maximize the cities' contribution to national income. City efficiency largely depends upon the effectiveness of its transport system, i.e. efficacy with which people and goods are moved throughout the city. Poor transport system stifle economic growth and development and the net effect may be a loss of competitiveness in both domestic as well as international markets.

Transport demand in most of the Indian cities has increased substantially due to increase in population as a result of both natural birth rates and migration from rural areas and smaller towns. Availability of motorized transport increases in household income, and increases in commercial and industrial activities have further added to it. In many cases demand has outstripped road capacity. Greater congestion and delays in both passenger and commercial traffic are widespread in Indian cities and indicate the seriousness of their transport problems. As a result, costs - particularly fuel costs - increased substantially, and affecting commerce and industry. A high level of pollution is another undesirable feature of overloaded streets. The result has been a serious decline in productivity and city efficiency, a drain on city and national budget, and a strain on urban institutions. The transport crisis also takes a human toll.
Statistics indicate that traffic accidents are a primary cause of accidental deaths in the Indian cities.

Traffic composition in India is of mixed nature. There is a wide variety of about a dozen types of both slow and fast moving vehicles. The modal split indicates that in 1977, about 39% of total vehicles were two wheelers, which increased to 69% in a span of just two decades. The share of two wheelers is likely to increase to about 80% by the year 2010.

The share of buses is negligible in most Indian cities as compared to two wheelers and cars. In the absence of an adequate and efficient public transport a large number of private and para-transit modes have entered into the market to meet the travel demand. Such a proliferation of vehicles results in acute congestion, inordinate delays, serious accidents, high energy consumption particularly of fossil fuels and intense pollution of the environment.

1.4 INDICATORS OF EFFICIENCY:

Like any other business, in bus operations also, profitability is good indicator and it helps to assess the efficiency of a bus system. Efficiency is defined as, “providing quality services to public at the minimum cost of operation and earn nominal profit by the transport industry”. Effective control of operation results efficient service. Operating efficiency determines and influences the overall financial performance to a large extent. More vehicle and fleet utilization, average daily kilometers operated by the buses on the road, less staff-bus ratio, high occupancy ratio, minimization of break downs, conservation of fuel, increased life of tyre, improving services and routes, cost reduction and improvement of earnings are generally considered as good measures or indicators of the efficiency of the transport industry.
1.5 PUBLIC BUS TRANSPORT SERVICES IN NAVI MUMBAI:

Currently, Navi Mumbai residents are served by four public bus transport agencies, which operate services between Mumbai – Navi Mumbai, within Navi Mumabi, Thane – Navi Mumbai and surrounding area. These service providers are, Navi Mumbai Municipal Transport (hereafter it is called as NMMT) Brihanmumbai Electric Supply and Transport (hereafter it is called as BEST) Maharashtra State Road Transport Corporation (hereafter it is called as ST) and Kalyan-Dombivali Municipal Transport (hereafter it is called as KDMT). Currently, NMMT has 226 buses catering services to 170508 passengers per day and 210 buses of BEST, 350 buses of ST, 35 buses of KDMT are operating along with 250 private buses in Navi Mumbai region.

1.6 NAVI MUMBAI MUNICIPAL TRANSPORT (NMMT):

Navi Mumbai Municipal Transport (NMMT) was established on 23rd January, 1996 with a fleet of 25 buses. Initially it was operating on 7 routes. Currently, it has 226 buses catering services to 170508 passengers per day and operating on 30 routes. Presently there are eleven bus terminii in Navi Mumbai. Out of these bus terminii two are located in Panvel and one is in Kalamboli hence they are located outside the NMMC area. Presently two bus depots are in operation in Navi Mumbai, one at Turbhe and other one is at Asudgaon (Panvel). NMMT provides concessional fare to the students and free services to freedom fighters and press reporters of Navi Mumbai.

1.7 NEED OF THE PRESENT STUDY:

Navi Mumbai Project, one of the world’s largest New Town Projects was taken up and conceived in early 1970’s. Navi Mumbai the city of the 21st century is being developed as a counter magnet to Mumbai, with the basic objective of curbing further growth of the mega city of Mumbai. Navi Mumbai is spreads over 344 sq.kms. with all the essential infrastructure.
It is situated adjacent to the Thane - Belapur Industrial Belt developed by MIDC, which is the largest industrial complex in Asia. In addition, the industrial belt at Taloja, Patalganga and the Jawaharlal Nehru Port Trust at the Southern tip of Mumbai, IT parks, adds to the strength of urban economy of Navi Mumbai.

During the last 37 years of development, Navi Mumbai has drawn significant economic activity projects. This comprises of shifting of wholesale Agriculture Produce Market from Mumbai to Vashi. The development of wholesale steel and large warehousing at Kalamboli, central business district at Belapur, Port and Port related activities at Dronagiri and Information Technology Park at Vashi and Belapur are the noteworthy major projects present in Navi Mumbai. All these created activities have further strengthened the economic base of Navi Mumbai. The new projects like, International Airport, Special Economic Zone at Dronagiri, Industrial Park at Kalamboli are the new economic activities coming up in Navi Mumbai. With all these, Navi Mumbai should emerge as a true counter-magnet on the main land.

As the result of development and easy availability of housing at reasonable cost, Navi Mumbai population has been increasing fast. Major share of increased population is of the migrants from Mumbai to Navi Mumbai. Residents of Navi Mumbai expect good and efficient Public Transport System. Currently, BEST, ST, NMMT, and KDMT provide passenger road transport service to the residents of Navi Mumbai. Navi Mumbai Municipal Corporation (NMMC) started its own public Transport in 1996. But the residents of Navi Mumbai are not satisfied with the transport service of NMMT, Navi Mumbai Municipal Transport undertaking currently incurred huge losses. It is criticized by the public for the following lacunae:

- Non-observance of time schedule
- Low frequency on certain heavy rush routes
- Rising number of breakdowns
• Improperly maintained, unclean Buses
• Large numbers of buses are off the road and cancellation of many schedules.

There is a need to study the imperfections in administration and evaluate the efficiency; hence researcher has selected this subject for the purpose of study.

1.8 OBJECTIVES OF THE PRESENT STUDY:

The broad objectives of the present study are as follows:

1. To study the organizational set up of NMMT.
2. To study the Administration and Performance of NMMT.
3. To know the quality of service provided by NMMT to public.
4. To know the opinions and expectations of NMMT Bus Users and Non-Users.
5. To study the operational efficiency of NMMT.
6. To give suggestions to improve performance of study organization

1.9 HYPOTHESIS:

The present study attempts to test the following hypothesis

‘Operational efficiency of Navi Mumbai Municipal Transport undertaking is not satisfactory’.

1.10 DATA BASE AND RESEARCH METHODOLOGY:

The data generated for study purpose was collected from both primary and secondary sources. In the first stage the data was collected from published work including data published by Central Institute of Road Transport (CIRT)
Pune, Environmental Status Report published by Navi Mumbai Municipal Corporation (NMMC) and other authorities and libraries. In the second stage, for collecting primary data, survey method was adopted, whereby data was collected by administering interview schedules. The sample commuters were selected by using Purposive Quota Accidental Sampling Technique, Non-Participatory observation method was also adopted.

1.11 SAMPLE DESIGN OF THE STUDY:

On an average 1.70 lacs passengers travelled per day during the survey year (i.e. 2006-2007). For the purpose of study, approximately 1% of 1.70 lacs passengers (i.e. 1700 passengers) were selected as sample respondents by adopting Purposive Quota Accidental Sampling Technique. As well as corresponding 1700 non-users of NMMT bus service were also selected for the purpose of survey.

Purposive meant only those bus users that were travelling on NMMT buses and also those travelling on the same route but using other modes of transport instead of NMMT.

Quota meant predetermined number (1700 bus users and 1700 non-users) and Accidental meant only those individual respondents that were willing to be interviewed and participated in the survey.

The actual 1700 user respondents were picked up as an accident samples when they were waiting for a particular bus at different NMMT bus stops and termini. The actual 1700 non user respondents were picked up as an accident samples from ST bus stops, BEST bus stops, Local Railway stations, market places, auto rickshaw and taxi stops, recreation centers, parking places, commercial and government offices, schools, colleges, etc.
1.12 DATA COLLECTION – PRIMARY DATA.

1.12.1 Statistical Information:

For the purpose of studying Administrative set up, working of organization and evaluating the physical and financial performance of the study organization against selected parameters, statistical information maintained by the study organization over a period of five years 2002-2003 to 2006-07 has been used with permission.

1.12.2 Structured Interview Schedule:

The primary data was collected from sample respondents of NMMT users and non-users through interview schedules.

In the first stage primary data was collected from NMMT bus users through structured interview schedule, administered to a total 1700 bus users. Information regarding personal profile, travel profile, and their opinions about working and quality of service of NNMT and opinion about other service providers in Navi Mumbai has been collected through survey.

In the second stage primary data was also collected from 1700 non-users of NMMT through structured interview schedules which contained the questions useful for collecting the information regarding their personal profile, travel profile, and reasons for not availing the NMMT bus service. Another question was asked and answer was elicited regarding whether they would use NMMT service if improved up to their expectation level.

1.12.3 Unstructured Interview:

Verbatim information of primary significance was collected through interview transcript from officers of the study organization, experts and its beneficiaries.

1.12.4 Informal Discussions:

Verbatim information in the form of interview transcript was collected to provide the background material for gaining deeper insights into the topic of
investigation from the persons knowledgeable in the related areas through informal discussions.

1.13 DATA COLLECTION – SECONDARY DATA

1.13.1 Library Sources:

Secondary data in the form of archival information has been collected from the records of the study organization, government offices and institutions. For discussing the theoretical aspects, published source like reports, periodicals, journals etc; have been used.

For the purpose of collecting secondary data, the researcher visited the following libraries, institutions and offices.

1. Library, Central Institute of Road Transport, Pune.
2. Jaykar Library, University of Pune.
3. J. N. Library, University of Mumbai.
4. Balasaheb Khardekar Library, Shivaji University, Kolhapur.
5. Library, Tata Institute of Social Sciences and Research, Deonar, Mumbai.
7. Karmaveer Bhaurao Patil College Library Vashi, Navi Mumbai
8. Mahatma Phule College Library, Panvel.
9. Head Office and Depot of NMMT, Turbhe, Navi Mumbai.
11. Traffic Department of BEST, Mumbai.
1.14 DATA ANALYSIS AND INTERPRETATION:

The data generated through various sources was tabulated and classified in accordance with the requirement of the topics. While interpreting the data quantitative techniques like percentage, ratio, average, and other statistical tools like trend analysis, growth rate, charts, etc, are used.

1.15 SCOPE OF THE STUDY:

The geographical scope of the study is limited to the operational area of study organization that is, Navi Mumbai. The topical scope focuses on the operational performance of the NMMT undertaking. The analytical scope covers the fulfillment of the study objectives, while the functional scope is confined to offering a set of meaningful suggestions for improving the efficiency of the study organization.

1.16 LIMITATIONS OF THE STUDY:

Following are the limitations of present work

1. The NMMT undertaking was established on 23rd January, 1996 with a fleet of 25 buses. This study consequently intended to cover the period from 1996 to 2004. However, the NMMT could not keep proper records of its operation for the first five years. This has compelled the researcher to make use of the data available from 2002 onwards. Hence the researcher decided to study Navi Mumbai Municipal Transport’s functioning for the period from 2002-03 to 2006-07.

2. The research study is mainly related to transport services provided by NMMT and commuters opinions and expectation. However, other technical aspects of buses are not studied in depth.

3. The opinions of the bus-user and non-user respondents of study organization’s bus service were found to have been influenced by several
socio-economic and demographic factors. The present study has not conducted a psychometric analysis of their attitudes towards the bus service.

1.17 OUTLINE OF THE STUDY:

The present study has been divided into eight chapters. These chapters are as follows:

Chapter I: Research Methodology and Data Base

The first chapter deals with the research methodology and database of the present study. It includes need of study, study area, objectives of study, hypothesis, methods of data collection, sampling methods, sample design, scope and limitations of study, broad outline of the chapters etc.

Chapter II: Review of Literature on Urban Transport and Management.

The second chapter deals with the review of literature on urban road transport. It includes comprehensive review of research literature on the topic of research.

Chapter III: Profile of Study Area.

Chapter three deals with the profile of study area and the factors affecting the transport services like growth of population, housing, economic development, commerce, trade industries educational institutions etc. As well as the profile of Navi Mumbai Municipal Corporation and Navi Mumbai Municipal Transport undertaking is also given.
Chapter IV: Theoretical Background and Brief History of Urban Transport.

Fourth chapter deals with the conceptual and theoretical aspects of the study and Brief History of Urban Transport in India and the world.

Chapter V: Administration and Working Procedure of NMMT

Chapter five deals with Administration and working procedure of NMMT. It includes organization chart and delegation of authority and functioning of different departments of Navi Mumbai Municipal Transport undertaking.

Chapter VI: Evaluation of Performance and Efficiency of NMMT

Chapter sixth deals with evaluation of performance and efficiency of NMMT. Financial and physical performance of NMMT is evaluated and compared with current standards. It also includes comparison of performance with selected municipal undertakings.

Chapter VII: Opinions and Expectations of NMMT Bus Users and Non-Users.

Chapter seven deals with the survey data collected from NMMT bus commuters as regards to transport services given by NMMT. Their opinions, expectations and reactions have been presented, analyzed and interpreted. It also deals with analysis and interpretation of non user’s opinions and expectations.
Chapter VIII: Summary, Conclusions and Suggestions.

This Chapter deals with main findings and conclusions. It also gave the suggestions for the improving efficiency and quality of service of NMMT undertaking.
REFERENCES


3. Ibid p.59

4. Padam Sudarsanam working papers on Urbanization and Urban Transport in India published by CIRT, Pune pp. 8-9