Chapter No. 02:
Research Methodology and Review of Literature.

- Introduction.
- Motor Vehicle Population.
- Challenges Facing the Indian Transport System.
- An Overview of Maharashtra State.
- Demographic Overview of Maharashtra.
- Infrastructure Overview.
- Road Development in Maharashtra.
- Marathwada Profile.
- Economy of Marathwada Region.
- Human Development Index and Per Capita District Domestic Product of Marathwada.
- Importance of Study.
- Objectives of the Study.
- Research Methodology.
- Scope of Study.
- Hypothesis.
- Chapters Scheme.
- Review of Literature.
Introduction:

The road transport mode in India has come to occupy a pivotal position in the overall transport system. Over the past five decades, the share of road transport in overall traffic flows has been continually increasing with a substantial shift from rail to road being observed. The road transport sector in India has expanded manifold in fifty years after independence, both in terms of spread and capacity. The growth in the importance of road transport within the transport sector is borne out by its growing share in GDP. The share of road transport in GDP is presently 3.69 per cent which accounts for a major share of all transport modes which contribute 5.5 per cent to GDP and handles more than 60 percent of the freight and more than 80 percent of the passenger traffic in India. Transport and communication is the basic infrastructure for economic development of a country. Highways and roads are regarded as arteries and veins of a State which are essential for sustainable economic growth. However, overestimation of the requirement and planning beyond the necessity of road transport would be delayed in the process of economic development of a region.

The road network though extensive remains inadequate in terms of spread, suffers from a number of deficiencies and is unable to handle high traffic density at many places and has poor riding quality in some segments. The main reason for these shortcomings is the inadequacy
of funds. Efforts are now underway to address these issues and improvement in the road network has been accorded a very high priority. This expansion of capacity will have to be accompanied by technological up-gradation in many critical areas. The need for new technology acquires greater urgency because the sector had been suffering from slow technological development for a long time.

The Indian road network is seemingly very large. However, only 47 per cent of the roads are paved. The high-density corridors of road linking metro cities and ports are crowded and are carrying traffic more than capacity. About 14,000 kms of National Highway require four laning, while 10,000 kms require widening from single lane to two-lane to facilitate normal flow of existing road traffic. The average productivity of a truck is 200 kms a day as against 350-400 kms that would be possible through reduction of congestion. The demand for transport is affected by structural changes taking place in the economy. This growth in transport demand has to be met by expanding domestic supply as transport infrastructure is non-tradable. Investment in transport must reflect the need to make up for existing capacity shortages and also to allow for growth in demand.
Motor Vehicle Population:

There has been a staggering 100 fold increase in the population of motorized vehicles; however, the expansion in the road network has not been commensurate with this increase. While the motor vehicle population has grown from 0.3 million in 1951 to over 30 million in 2004, the road network has expanded from 0.4 million km to 3.32 million km, only a 8 fold increase in terms of length during the same period. However, upgrading of roads by way of widening of carriage- ways, improved surface quality, strengthening/ reconstruction of old/ weak bridges and culverts, etc. has been carried out.

Table No. 2.01:

Motor Vehicle Population in India.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Goods Vehicle (in thousands)</th>
<th>Number of Passenger Buses (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950- 1951</td>
<td>82</td>
<td>34</td>
</tr>
<tr>
<td>1997- 1998</td>
<td>2536</td>
<td>538</td>
</tr>
<tr>
<td>1998- 1999</td>
<td>2554</td>
<td>540</td>
</tr>
<tr>
<td>1999- 2000</td>
<td>2715</td>
<td>562</td>
</tr>
<tr>
<td>2000- 2001</td>
<td>2948</td>
<td>634</td>
</tr>
<tr>
<td>2001- 2002</td>
<td>3045</td>
<td>669</td>
</tr>
<tr>
<td>2002- 2003</td>
<td>3485</td>
<td>728</td>
</tr>
</tbody>
</table>

Source: [http://www.indiacore.com](http://www.indiacore.com)
Challenges Facing the Indian Transport System:

The major challenges facing the Indian transport system are:³

1. **India’s roads are congested and of poor quality:**
   Most national highways are two lanes or less with the creation of low lane capacity. Almost a quarter of all India's road highways have recurrent congestion, reducing truck and bus speeds to 30-40 km/h. Recurrent congestion on Indian roads contributes to high fuel consumption and huge pollution. Most roads are of poor quality and the maintenance of roads remains significantly under-funded with the result that only one-third of maintenance needs are met. This leads to the deterioration of roads and high transport costs for users. Taxes and bribes common between state borders paid by truckers.

2. **Poor access to rural areas:** Roads are claimed to be a catalyst for the economic development of rural areas. Almost 70 percent of India’s populations reside in rural areas. Although the rural road network is extensive, some 40 percent of India’s villages are cut off during monsoon season due to the lack of good access of all-weather roads. This problem is more acute in certain parts of India especially in the northern and northeastern states which are poorly linked to the country’s major economic centers.
3. **Railways are facing severe capacity constraints:** In general, India’s high-density rail corridors face severe capacity constraints. Also, freight transportation costs by rail are much higher than in most countries as freight tariffs in India have been kept high to subsidize passenger traffic. Moreover, capacity expansion of rail infrastructure networks is more determined by political compulsions rather than commercial opportunities.

4. **Urban centers are severely congested:** In most Tier I and Tier II cities, roads are often severely congested during the rush hours. The dramatic growth in vehicle ownership – estimated to be at some 15 percent a year during the past decade – has reduced rush hour speeds to as low as 5-10 km an hour in the central areas of major cities. Also, the intensive construction work to add capacity (such as roads, bridges, metro development) in congested areas have become a further impediment to the flow of the dense traffic which has added to the congestion problems.

5. **Ports are congested and inefficient:** With liberalization of the Indian economy since the early 1990s, port traffic has more than doubled, touching 521 million tons in 2004-05. The port traffic volumes are expected to grow further to about 900 million tons by 2011-12. Therefore, India's ports need to
significantly ramp up their capacity and productivity to meet this surging demand.

6. Airport infrastructure is strained: With the entry of low cost carriers in the Indian aviation markets, air passenger and goods traffic has been growing at over 15 percent a year leading to severe strain on infrastructure at major airports, especially in Delhi, Chennai, Bangalore and Mumbai airports which account for more than 70 percent of nation’s air traffic.

An Overview of Maharashtra State:

The present State of Maharashtra was born on 1st May 1960. Maharashtra, one of the most industrialized states of India, occupies the western and central parts of the country and extends over the Sahyadri Mountains; a vast stretch of 720 kilometers of the Arabian Sea coast providing it a beautiful backdrop. Maharashtra’s contribution to the Indian Economy is high and hence it is called as the Power House of India. Maharashtra contributes to less than ten per cent of the total population of the country, but accounts for nearly one-fourth of the gross value of India’s industrial sector. The state has succeeded in achieving high levels of industrialization, demonstrated by the fact that the secondary and tertiary (manufacturing and service) sectors provide 78.8 per cent of Maharashtra’s gross domestic product, as compared to the national average of 65.4 per cent for the same fields. Maharashtra has the best road
connection in India and all the places of importance are conveniently connected to each other. The Maharashtra State Road Transport Corporation as well as private operators provides good services connecting all the tourist centers in the state. Total Road length and National Highway length are as follows:

- Road length - 2,08,183 km.
- National Highway length - 2,959 km

**Demographic Overview of Maharashtra:**

Maharashtra is the second largest state of India both in terms of geographical area and population. It has 35 districts divided into six divisions. Maharashtra is a highly urbanized state with 45.2 percent of the population residing in urban areas. The table below gives key demographic indicators and their comparison with pan-India numbers-
Table No. 2.02:
Demographic Profile of Maharashtra:

<table>
<thead>
<tr>
<th>Sr.</th>
<th>Indicators</th>
<th>Unit</th>
<th>Maharashtra</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Geographical Area</td>
<td>Lakh Sq. Km</td>
<td>3.08</td>
<td>32.87</td>
</tr>
<tr>
<td>2</td>
<td>Population</td>
<td>Crore</td>
<td>11.23</td>
<td>121.02</td>
</tr>
<tr>
<td>3</td>
<td>Decadal Growth Rate</td>
<td>Percentage</td>
<td>16.00</td>
<td>17.64</td>
</tr>
<tr>
<td>4</td>
<td>Density of Population</td>
<td>Population/Sq. Km.</td>
<td>365</td>
<td>382</td>
</tr>
<tr>
<td>5</td>
<td>Sex Ratio</td>
<td>Females/1000 Males</td>
<td>925</td>
<td>940</td>
</tr>
<tr>
<td>6</td>
<td>Literacy Rate (LR)</td>
<td>Percentage</td>
<td>82.9</td>
<td>74.04</td>
</tr>
<tr>
<td>7</td>
<td>Birth Rate</td>
<td>Per 1000 Mid-year Pop.</td>
<td>16.7</td>
<td>21.80</td>
</tr>
<tr>
<td>8</td>
<td>Death Rate</td>
<td>Per 1000 Mid-year Pop.</td>
<td>6.3</td>
<td>7.10</td>
</tr>
</tbody>
</table>

Source: Economic Survey of Maharashtra 2012-13

Infrastructure Overview:

- **Roads**: Total road length in the state, as on March 2012, was approx. 2.45 lakh km. More than 99 percent of the villages are connected by all weather roads and fair weather roads.
- **Railways**: Total length of the rail network in the state, as on March 2012, was 5,984 km.
• **Water Transport:** The state has a 720 km long coast line having two major ports i.e. Mumbai Port Trust and Jawaharlal Nehru Port Trust.

• **Airports:** There are four international airports in the state in Mumbai, Nagpur, Pune and Aurangabad and five domestic airports.

• **Power:** State has highest installed capacity and generation of electricity in the country. The installed capacity as on March 2012 was 20,370 MW, with thermal power contributing to more than 50% of the total capacity.

**Road Development in Maharashtra:**

A road plays an important role in the development process of any country. In India, roads are in existence since the Aryans settled in the Indo-Gangetic plains. Roads received more attention during the Hindu and Islamic periods. The early British period experienced major road building activity because the roads served military and administrative needs of the country. Due to the rapid growth in traffic, the condition of the roads deteriorated to a large scale. In view of this situation Government convened a conference of Chief Engineers at Nagpur in 1943. This conference prepared a Road Development Plan for the entire country for a period of 20 years called the Nagpur plan. Though the targets of the Nagpur plan were almost achieved by 1961, the road system was deficient in many respects. The Chief Engineers of various states adopted a 20 year
Road Development Plan (1961-81) popularly known as Bombay Plan. The overall objective of the plan was to raise the density of road mileage from 26 square miles per 100 squares miles of the area to 52 miles per 100 square miles of the area.

The reorganization of State took place on 1.11.1956. The Vidarbha region was a part of the then Madhya Pradesh and Maharashtra region was a part of the Ex-Hyderabad State. These were merged in the State of Bombay to form the bi-lingual State. On 1st May 1960. Maharashtra is one of the leading industrial States of India. The number of industries, educational institutions, tourist centers, hospitals, co-operative sugar/textile/daily producing centers have increased considerably especially during the last 50 years. The number of mechanical vehicles has increased from 1,00,144 in 1961 to 55,18,156 in 1999. Similarly there is considerable increase of vehicle ownership from 250 vehicles per one lakh population in 1961 to 6,342 vehicles per one lakh population in 1999. The Road length existing as in 1961 was only 39,242 kms. To meet the ever increasing demand of better and wider road network in the State, two ‘20 year Road Development Plans’ namely 1961-81 Road Development Plan and 1981-2001 Road Development Plans were implemented.

The road infrastructure in the State is managed by various local bodies including Public Works Department of
the state, municipal corporation, Maharashtra State Road Development Corporation (MSRDC), Maharashtra Industrial Development Corporation (MIDC), Forest Department. The total state secondary road length maintained by the PWD and Zilla Parishad (excluding internal road length of local bodies) at the end of March, 2006 was 2.31 lakh km. The establishment of fully state owned corporation, MSRDC has propelled private sector participation in road projects. MMRDA (the Mumbai Metropolitan Region Development Authority) has the mandate for MUIP (Mumbai Urban Infrastructure Project) with an estimated cost of around Rs.2,648 Cr. In order to cater to the increasing traffic volumes, Government of Maharashtra has envisaged large scale improvement measures including widening and strengthening of pavements, enhance speed and safety of traffic movement and railway over bridges at level crossings. To meet with the investment requirements, Government of Maharashtra has decided to attract private sector participation through enabling framework.

**Marathwada Profile:**

The Marathwada region of Maharashtra State has eight districts viz. Aurangabad, Jalna, Parbhani, Hingoli, Beed, Latur, Nanded and Osmanabad. Marathwada is one of the most backward regions as characterized by low standards of living with a dominant agricultural sector with little industrialization. The backwardness of Marathwada region is not a result of poverty only. There are social, economical,
geographical and entrepreneurial reasons behind it. The importance of the industrialization is over looked. In the absence of industrialization in rural area of Marathwada the region’s economy cannot be developed as compare to the other regions of the state. Rural Development Programmes is very necessary for the development of Marathwada region because the maximum number of people (75.46 percent) of the region is living in rural areas.

Table No.2.03:
Geographical Area with Talukas and Villages in Marathwada region.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of District.</th>
<th>Geographical Area (Sq.K.M.)</th>
<th>Talukas</th>
<th>Vilages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurangabad</td>
<td>8,900</td>
<td>9</td>
<td>1,250</td>
</tr>
<tr>
<td>2</td>
<td>Beed</td>
<td>11,085</td>
<td>12</td>
<td>1,269</td>
</tr>
<tr>
<td>3</td>
<td>Hingoli</td>
<td>5,521</td>
<td>5</td>
<td>662</td>
</tr>
<tr>
<td>4</td>
<td>Jalna</td>
<td>7,405</td>
<td>8</td>
<td>956</td>
</tr>
<tr>
<td>5</td>
<td>Latur</td>
<td>7,304</td>
<td>10</td>
<td>936</td>
</tr>
<tr>
<td>6</td>
<td>Nanded</td>
<td>10,528</td>
<td>16</td>
<td>1,580</td>
</tr>
<tr>
<td>7</td>
<td>Usmanabad</td>
<td>7,510</td>
<td>8</td>
<td>722</td>
</tr>
<tr>
<td>8</td>
<td>Parbhani</td>
<td>5,520</td>
<td>9</td>
<td>1,480</td>
</tr>
<tr>
<td></td>
<td></td>
<td>63,773</td>
<td>77</td>
<td>8,855</td>
</tr>
</tbody>
</table>

Source: Socio-Economic Survey of Districts of Marathwada.
Table No. 2.04:
Population of Marathwada region.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>State/District Name</th>
<th>Population 2011</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Persons</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>112372972</td>
<td>58361397</td>
<td>54011575</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Nanded</td>
<td>3356566</td>
<td>1732567</td>
<td>1623999</td>
</tr>
<tr>
<td>16</td>
<td>Hingoli</td>
<td>1178973</td>
<td>609386</td>
<td>569587</td>
</tr>
<tr>
<td>17</td>
<td>Parbhani</td>
<td>1835982</td>
<td>946185</td>
<td>889797</td>
</tr>
<tr>
<td>18</td>
<td>Jalna</td>
<td>1958483</td>
<td>1015116</td>
<td>943367</td>
</tr>
<tr>
<td>19</td>
<td>Aurangabad</td>
<td>3695928</td>
<td>1928156</td>
<td>1767772</td>
</tr>
<tr>
<td>27</td>
<td>Bid</td>
<td>2585962</td>
<td>1352468</td>
<td>1233494</td>
</tr>
<tr>
<td>28</td>
<td>Latur</td>
<td>2455543</td>
<td>1276262</td>
<td>1179281</td>
</tr>
<tr>
<td>29</td>
<td>Osmanabad</td>
<td>1660311</td>
<td>864674</td>
<td>795637</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>18727748</strong></td>
<td><strong>9724814</strong></td>
<td><strong>9002934</strong></td>
<td></td>
</tr>
</tbody>
</table>

Source: Socio-Economic Survey of Districts of Marathwada.
Table No. 2.05:
Literacy Rates by sex in Marathwada region: 2001 & 2011

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>State/District Name</th>
<th>Literacy rate*</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maharashtra</td>
<td>76.88</td>
<td>82.91</td>
<td>85.97</td>
<td>89.82</td>
</tr>
<tr>
<td>1</td>
<td>Nanded</td>
<td>67.77</td>
<td>76.94</td>
<td>80.44</td>
<td>86.62</td>
</tr>
<tr>
<td>2</td>
<td>Hingoli</td>
<td>66.25</td>
<td>76.04</td>
<td>80.71</td>
<td>86.73</td>
</tr>
<tr>
<td>3</td>
<td>Parbhani</td>
<td>66.07</td>
<td>75.22</td>
<td>79.63</td>
<td>85.66</td>
</tr>
<tr>
<td>4</td>
<td>Jalna</td>
<td>64.42</td>
<td>73.61</td>
<td>79.15</td>
<td>85.25</td>
</tr>
<tr>
<td>5</td>
<td>Aurangabad</td>
<td>72.91</td>
<td>80.40</td>
<td>84.88</td>
<td>89.31</td>
</tr>
<tr>
<td>6</td>
<td>Bid</td>
<td>67.99</td>
<td>73.53</td>
<td>80.70</td>
<td>83.99</td>
</tr>
<tr>
<td>7</td>
<td>Latur</td>
<td>71.54</td>
<td>79.03</td>
<td>82.94</td>
<td>87.42</td>
</tr>
<tr>
<td>8</td>
<td>Osmanabad</td>
<td>69.02</td>
<td>76.33</td>
<td>80.42</td>
<td>85.31</td>
</tr>
</tbody>
</table>

Source: Socio-Economic Survey of Districts of Marathwada.

Table No. 2.06:
No of Roads in the Districts of Marathwada:

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of District</th>
<th>All weather Roads</th>
<th>Seasonal Roads</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurangabad</td>
<td>1,272</td>
<td>24</td>
</tr>
<tr>
<td>2</td>
<td>Beed</td>
<td>1,209</td>
<td>12</td>
</tr>
<tr>
<td>3</td>
<td>Hingoli</td>
<td>369</td>
<td>182</td>
</tr>
<tr>
<td>4</td>
<td>Jalna</td>
<td>415</td>
<td>296</td>
</tr>
<tr>
<td>5</td>
<td>Latur</td>
<td>781</td>
<td>108</td>
</tr>
<tr>
<td>6</td>
<td>Nanded</td>
<td>851</td>
<td>47</td>
</tr>
<tr>
<td>7</td>
<td>Osmanabad</td>
<td>704</td>
<td>25</td>
</tr>
<tr>
<td>8</td>
<td>Parbhani</td>
<td>531</td>
<td>245</td>
</tr>
</tbody>
</table>

Source: District Socio-Economic Analysis.
Table No. 2.07:
Roads (In K.M.) in the Districts of Marathwada.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of District</th>
<th>National Highway</th>
<th>State Highway</th>
<th>District Highway</th>
<th>District Road</th>
<th>Rural Roads</th>
<th>Total K.M.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aurangabad</td>
<td>134</td>
<td>1,524</td>
<td>1,715</td>
<td>1,257</td>
<td>3,788</td>
<td>8,418</td>
</tr>
<tr>
<td>2</td>
<td>Beed</td>
<td>193</td>
<td>1,874</td>
<td>4,166</td>
<td>3,217</td>
<td>8,618</td>
<td>18,068</td>
</tr>
<tr>
<td>3</td>
<td>Hingoli</td>
<td>0</td>
<td>471</td>
<td>1093</td>
<td>925</td>
<td>2,927</td>
<td>5,416</td>
</tr>
<tr>
<td>4</td>
<td>Jalna</td>
<td>22</td>
<td>1,140</td>
<td>850</td>
<td>731</td>
<td>951</td>
<td>3694</td>
</tr>
<tr>
<td>5</td>
<td>Latur</td>
<td>0</td>
<td>837</td>
<td>1,520</td>
<td>1,349</td>
<td>3,546</td>
<td>7,252</td>
</tr>
<tr>
<td>6</td>
<td>Nanded</td>
<td>94</td>
<td>1,273</td>
<td>2,517</td>
<td>2,244</td>
<td>4,580</td>
<td>10,708</td>
</tr>
<tr>
<td>7</td>
<td>Osmanabad</td>
<td>905</td>
<td>888</td>
<td>1,426</td>
<td>1,027</td>
<td>2,542</td>
<td>6,788</td>
</tr>
<tr>
<td>8</td>
<td>Parbhani</td>
<td>0</td>
<td>591</td>
<td>1,211</td>
<td>667</td>
<td>1,879</td>
<td>4,348</td>
</tr>
</tbody>
</table>

Source: District Socio-Economic Analysis.

Economy of Marathwada Region:

Marathwada economy exhibits features which more or less similar to a under-developed economy. These features, are indicated earlier, are either inherited or generated in the process of planning and development. Analyze these features in detail as follows.

- **Agricultural Sector:** Generally, an economy Marathwada will be divided in to three sectors, namely, Primary Sector, Secondary Sector and Tertiary Sector. The Primary Sector is the sector, which forms the basis of the entire economy. In all agricultural countries, agricultural sector is the primary sector. The secondary sector will be next in the order of importance. Industrial sector is the secondary sector in all agricultural
countries. Tertiary sector is the third sector indicates transport, communications, trade and commerce, profession etc. An under developed Marathwada is exclusively a primary producing economy. It will mainly depend on the production of agricultural materials, and industries mainly are agro-based like sugar, cotton, edible oil etc. The share of the agricultural sector has the larger in the composition of the state income; more than 75 per cent of the people are engaged in agriculture. The pressure of population is very high. Nearly 50 per cent of the state income is derived from agriculture. Inspite of the fact that in Marathwada, industries started just two decade back and now hardly 5 per cent of the population is engaged in industry and that mostly in agro-based industries.  

- **Population Pressure:** Over population is a sign of under-development. In Marathwada, the population is growing at an alarming rate. During the decade 1961-1991, the increase was 40 per cent, which is nothing but population explosion. Alarming increase in population, excessive pressure on land and poor industrial development has created unemployment problems; this could not be solved successfully. Inspite for the planning of more than two decades, the number of job seeks on the live register of employment exchange in Marathwada has reached ten thousand in 1961 to 2 lakhs in 1998. Apart from this, tremendous increase in
the number of unemployed. The problem of ‘disguised unemployment’ in taking serious proportions. Due to large increase in population, many people settle down on land to eke out their living from agriculture. When more persons were working then what is actually required, is called ‘disguised unemployment’. The excess population does not contribute towards the productivity of land and hence their marginal productivity is zero.

- **Poor Income and Poor Saving:** Another important feature of under-employment is the low per capita income of the people and the consequent little or no saving in the economy. Judging from their region angels, Marathwada is definitely an under-developed. It has been estimated that per capita income of Marathwada is only $1/40$ of that of Mumbai. According to the MDC statistics, Marathwada is one of the poor regions of Maharashtra, if not the poorest. A natural outcome of poor income is little saving or no saving in the economy. The saving plays a vital role in economic growth, as saving and investments are the two crucial determinants of economic growth.

- **Under utilization of resources:** The natural resource of the under-developed economy is either unutilized or under-utilized. Marathwada is not be in deficient in natural resources like land, water, minerals etc. the main problem would be that those resources are
poorly harnessed or improperly used. Poor and improper utilization may be due to various reasons like weak leadership, inaccessibility, and lack of technical knowledge, shortage of capital and limited market. Many of the regions of India have good potential for development, but they remain backward because of under-utilization of resources. Marathwada has vast natural land resource including, lofty mountains, perennial rivers, etc. but these have not been fully utilized. It has still about many acres of cultivable wasteland. The waterpower potential of the region has been harnessed only up to 25 per cent.

- **Capital deficiency:** Capital occupies a strategic role in production and economic development. Under-developed regions would suffer from capital deficiency. The stock of capital is small, but also the rate of which it is being formed is also being low; the process of capital formation is far from satisfactory. It has seen that the saving in Marathwada, as percentage of incomes is too poor to have investment for capital formation.

- **Low level of technology:** In backward economies like, Marathwada there is terrible dearth of skilled personnel and as such the methods of production are program primitive. Consequently, the productivity either in agriculture of industries is very low. Lack of technical
know-how, poor scientific advancement and absolute technique, combined with poor entrepreneurship have resulted in poor quality products. Through in Marathwada in Nanded and Aurangabad proper, some advanced techniques is seen in some industries, the same as compared with the modern standards of production, is decidedly inferior.

- **Poor Economic Organization:** Well-developed economic institutions are vital factors of economic development. In Marathwada economic institutions would be either ill-developed or completely absent closely knit economic organization and financial institutions would enable the region to absorb the outlay for development very easily and institutional reforms could also be carried out with ease. At the time of independence, Marathwada deplorably lacked economic organization and financial institutions. The little available institutions were serving only the richer classes. Hence, in the process of planning and development, attempts are made to create the necessary organizational set-up at all levels to effect quick growth.

- **Lack of Suitable Socio-Economic Set-Up:** In Marathwada, the prevailing socio-economic set-up would be the greatest impediment to development. Mass poverty and illiteracy combined with caste system, religious beliefs, etc. adversely affect the course of
economic development. The industrial development of Poona-Bombay belt is an excellent example to prove the importance of socio-economic set up for Marathwada people. In Marathwada, the caste consciousness proved determinate to economic progress as it impeded the movement of capital, labour, and dampened into non-competing groups. Hence, occupation mobility had little meaning. Through casteism is one of the wane, it has taken a new shape in the hands of selfish politicians. It has emerged in the form of regionalism, parochialism, etc. preventing mobility and displays an entrepreneurial skill.

- **Mass Poverty, Misery and Low-Standard of Living:**
  About half of the people in the Marathwada are economically very backward, poor and leading a miserable life without any norms of standard of living. The backwardness, poverty and poor standard result in low labour productivity, factor immobility, and lack of entrepreneurship and poor specialization. Instead of conquering the physical and social environments, people would surrender to them. The under-development portion of Marathwada is just the slum of the Maharashtra. It has been estimated that nearly 30 per cent of the population in Marathwada live below the poverty line inspite of planning over five decades. The bottom 30 per cent of population gets only 13 per cent
of total private consumption. They live in abject poverty and misery.\textsuperscript{9}

**Human Development Index and Per Capita District Domestic Product of Marathwada:**

Marathwada districts are the most backward among all districts of Maharashtra and score low on Human Development Index. The following table shows the clear-cut picture.

**Table No. 2.08:**

**Human Development Index and Per Capita District Domestic Product of Marathwada:**

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>District</th>
<th>HDI – 2000 (Index)</th>
<th>Rank (HDI)</th>
<th>PCDDP Rs. 1998-99</th>
<th>Rank (PCDDP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Aurangabad</td>
<td>0.57</td>
<td>12</td>
<td>19,365</td>
<td>11</td>
</tr>
<tr>
<td>02</td>
<td>Jalna</td>
<td>0.27</td>
<td>33</td>
<td>12,047</td>
<td>33</td>
</tr>
<tr>
<td>03</td>
<td>Parbhani</td>
<td>0.43</td>
<td>24</td>
<td>13,827</td>
<td>26</td>
</tr>
<tr>
<td>04</td>
<td>Hingoli</td>
<td>0.43</td>
<td>25</td>
<td>13,827</td>
<td>27</td>
</tr>
<tr>
<td>05</td>
<td>Beed</td>
<td>0.47</td>
<td>18</td>
<td>15,303</td>
<td>21</td>
</tr>
<tr>
<td>06</td>
<td>Nanded</td>
<td>0.37</td>
<td>29</td>
<td>13,068</td>
<td>31</td>
</tr>
<tr>
<td>07</td>
<td>Osmanabad</td>
<td>0.38</td>
<td>28</td>
<td>12,905</td>
<td>32</td>
</tr>
<tr>
<td>08</td>
<td>Latur</td>
<td>0.47</td>
<td>19</td>
<td>13,677</td>
<td>29</td>
</tr>
</tbody>
</table>

About 95 per cent of agriculture land of Marathwada is dry land farming. It is the least urbanized area in Maharashtra with 80 per cent of the population living in rural areas. About 30 per cent of the population in Marathwada region is below poverty level. Its per capita GDP is only Rs. 14,220 (US$ 316). The literacy rate is the lowest in the state - 65 per cent with only 55 per cent literacy among women. All eight districts in the region figure in the list of the 100 poorest districts in the country. Maharashtra is growing as a State but Marathwada is not keeping pace with it.

- Marathwada’s share in GDP is only 10 per cent.
- Incidence of poverty is more here.
- The average per capita income is Rs. 29,000 for state, but hovers in the range of Rs. 12,000 to Rs. 20,000 for districts in the region.
- Only Aurangabad, with per capita income of Rs. 19,365, is better placed.
- Financial reforms are needed for bettering fortunes of the region.

**Importance of Study:**

An efficient transport system is a pre-requisite for sustained economic development. It is not only the key infrastructural input for the growth process but also plays a significant role in promoting national integration, which is particularly important in a large country like India. The transport system also plays an important role of promoting
the development of the backward regions and integrating them with the mainstream economy by opening them to trade and investment. In a liberalized set-up, an efficient road network becomes all the more important in order to increase productivity and enhancing the competitive efficiency of the economy in the world market. Of the various modes of transport that connect the cities and villages of the country, road transport constitutes the crucial link. Road infrastructure facilitates movement of men and material, helps trade and commerce, links industry and agriculture to markets and opens up backward regions of India. In addition, the road system also provides last-mile connection for other modes of transport such as railways, airports, ports and inland waterway transport and complements the efforts of these modes in meeting the needs of transportation.

It is well known that the roads are playing an important role in 'uplifting the social, economic and cultural life of the people, under the transitional stage of any society. Similarly, the developing country's no way backward in construction of roads in view of providing basic needs and creation of roads. India though it is a developing country, it has given prime importance for constructing roads to her people, even to the people who are having in less infrastructural areas. It is very much eager to know, the impacts of the roads on the living standard of the people. How far rural roads helped in adopting the changing
technological tools or methods in framing activities. Since the changes are natural, though such changes have not been studied from the socio-economic point of view. These infrastructure and the changing pattern of farming have not been studied in recent days.

**Objectives of the Study:**

The following are the specific objectives of the study are as follows.

1. To study the importance of road development and its impact of infrastructure development in India, Maharashtra and Marathwada.
2. To know the status of roads in Maharashtra and Marathwada region.
3. To take an overview of the road development programmes in Marathwada.
4. To make an assessment of the progress of the road net-works in the Marathwada region.
6. To find out the various drawbacks and barriers in road development in Marathwada region.
7. To suggest some important measures for the improvement in the performance of MSRDC.
Research Methodology:

The study is mainly based on secondary data sources as well as primary data will also be considered for the present study. Primary data collected through interviews will be conducted with the officials of roads authority, observation and experience survey and obtained the necessary information from them. The field visit will be conducted by the field survey. To get the primary data the interviews will be held with State level and District level Implementing Authority. The secondary data is collected from Government authority, Research Books, Journals, newspapers, reports, articles other important sources. In addition, the study is supplemented with the spot observations at various destination of Marathwada region. The simple statistical and mathematical tool are used for data analysis for the present study. In Marathwada region there are eight districts i.e. Aurangabad, Beed, Hingoli, Latur, Nanded, Osmanabad, Parbhani and Jalna. Every district is covered for study.

Scope of Study:

The present study undertaken by researcher is limited to Marathwada region of Maharashtra State. It is with this point of view that this study has been undertaken. This study confined to the study period of ten years i.e. 2001-02 to 2010-11.
**Chapters Scheme:**

The study will be distributed in following eight chapters

1. Introduction.
2. Research Methodology and Review of Literature.
3. Role and Importance of the Road in Economy.
4. Road Development Authorities.
5. Performance Evaluation of MSRDC.
6. Conclusions and suggestion.

**Review of Literature:**

Available literature and documentary sources help us to have a clear idea of the extent of research that has been carried out in the particular field in the past. The review of such literature the researcher to have a clear view of the research gaps and the areas that requires to have filled in. This chapter mainly contains the views and findings of selected studies on the road conditions. Many studies have attempted to present the nature, status and conditions of road and road transport in India. An attempt is made in this chapter to review some of the earlier studies of road system in India to have a comprehensive view of the problem.


   have come to a conclusion that "The road is one of the greatest fundamental institutions of mankind". They also found that: roads have profound economic and social significance in the modern word - A good road system
aids to agriculture, indirectly it breaks up the isolation of villages. The provision of good roads and transport facilities in rural areas foster the development of rural industries, particularly dairy-farming, bee-keeping, and poultry-farming. Roads affect agriculture directly by enlarging the areas under. Cultivation, and also promotes a change in the type of a agriculture rural production by diversion of cultivation from food crops to commercial crops. Development of small-scale industries becomes possible in rural areas due to their closed road contact with their urban markets.

2. Manohar Lal (1989)\textsuperscript{11} studied the roads and their socio-economic impact on the rural community of Bihar. He found that the road development has bestowed a package of benefits on the village people. In agriculture sector, he found that the development of road network has resulted in faster and more equitable distribution of inputs as also marketing of products. Allied agricultural and non-agricultural activities have also started growing with expanding road communication. Small trade and business establishments have come up in some of the villages linked with roads. He also observed that the rural road network generated a better access to facilities for schooling, health, banking and postal services to the rural people. Thus, there was a clear indication that the development of rural roads has become a necessity
to accelerate socio-economic transformation of rural society.

3. **S. Sriraman (1998)** - The road transport industry in India has emerged as the dominant part of the transport system. However, the industry is finding it increasingly difficult to meet emerging requirements. This may be partly due to the inadequacies of the road network, which if expanded and upgraded could go a long way in promoting efficient vehicle operations. Part of the problem also lies in the inability of service organization, especially in the public sector, to deliver services efficiently. With the industry having suffered from a near absence of technological improvements in the design and manufacture of vehicle, there is urgent need to effect these changes immediately.

4. **H. C. Kantharajappa (1998)** - The development of road system should not be considered only from the view point of construction of new roads, but also there should be adequate provision for the maintenance and improvement of existing roads. More or less, everybody uses roads in one way or the other. Great emphasis was laid on the rural road development of the country by the National Planners, who realised what was necessary to build new village roads, before other economic plans could be put on wheels and at least
those villages which lie within a few miles on either side of the existing roads should be linked up first.

5. **Road Transport Service Efficiency Study (2005)**

This study reviews the long-distance road transport industry in India in order to identify inefficiencies that could reduce the benefits to be derived from the large investments now being made by the Government in the nation’s highway infrastructure. While the road transport sector includes a wide variety of activities, this study focuses on three aspects which were considered the most relevant to the investments in highway infrastructure viz; the trucking industry, inter-city buses, and in view of its very important but largely unfulfilled role in enhancing road safety, the motor insurance industry. This study brings out some key findings and recommendations for the three sectors. For the trucking industry, delays at the border crossings are cited as major concern area resulting in a significant cost to the economy. It recommends the use of multi-axle vehicles and tractor-trailer combinations to reduce transport costs and road pavement damage, and improvement in axle load controls. For the inter-city bus service, it is recommended that the sector undertake reforms including deregulation of tariffs, restructuring & commercialization of STUs, elimination of monopoly rights and creation of an independent agency for
regulation. Finally, regarding motor insurance, it is strongly recommended that the premiums related to insurance should be attached to the owner and the driver and not to the vehicle.

6. **S. Sriraman (2006)**\(^1\) - The road transport mode serves as one of the key factors in the developmental process of any economy. While historically, the railways have played a dominant role in the overall transport system of many countries, the road transport mode has, over a period of time, come to occupy a pivotal role by virtue of certain inherent advantages. Over the past few decades, the share of road transport in the total surface traffic movement in India has been gradually increasing with a distinct shift away from the railways being observed. Most recent estimates give the road mode a share of nearly 63 per cent in freight movement compared to its share of just about 10 per cent in the early fifties. According to these estimates, this percentage share is likely to stabilize around 85 percent.

7. **Donnges, Ch.; Edmonds, G.; Johannessen, B. (2007)**\(^2\) - Investments in rural roads have significant potential for the use of local resources, create decent jobs, support the local economy and strengthen local commerce and have therefore important implications for poverty reduction and local economic and social
development. The direct consequence of investing in rural roads is the generation of jobs, incomes and business opportunities, particularly if the development and maintenance of these rural roads is targeted in favour of local resource based methods. Longer lasting impacts such as improved access to goods and services and production and productivity enhancing impacts further contribute to sustainable poverty reduction and local economic and social development. Impacts however will only be sustainable if the roads are maintained.

8. **Udai S. Mehta (2009)** - The study focusing on road transport sector identifies and list provisions in different statutes, rules, policies and practices, which limit competition or have the potential to limit competition in a sector. Finally, the paper recommends changes in the regulations and their implementation procedures to address the competition-related issues. The study also has come up with few suggestions to promote and protect competition in the road transport sector. The study also advocates for the reformation of state transport undertakings (STUs) and curbing of cartels in the transport sector by the Competition Commission of India (CCI). As part of reformation the study underlines the need for deregulation of tariffs, restructuring and commercialization of STUs, elimination of STU monopoly rights, changes in the tax
regime to achieve uniformity of tax treatment of all buses operating in the inter-city markets.

9. **Patil R.P. (2009)**\(^{18}\) - India has more than 3.3 million km of road network, making it one of the largest in the world of which rural roads - 2.65 million km 80%). In 1950 Average Distance - 10 km from a village. In 2000 Average Distance - 2 km from a village but, wide variation across states/districts. However, the quality of the roads is inappropriate and cannot meet the needs of efficient and fast moving transportation. The total road length in India has increased significantly from 0.399 million kms as in 1951 to 3.38 million kms as in 2004. The surfaced road lengths have also increased from 0.157 million kms to around 1.604 million kms in the same period. Surface length constitutes 47.3 per cent of total road length in 2004. National Highways that are the prime arterial route span about 57,737 km. throughout the country and cater to about 45 per cent of the total road transport demand.4 The entire network is classified into five distinct categories from the viewpoint of management and administration are - National Highways (NH), State Highways (SH), District Roads (DR), Village Roads (VR), Border Roads (BR).

10. **IRC Highway Research Board (2010)**\(^{19}\) - A study has been initiated with an objective to develop detail
design, specification and drawing of fiber reinforcement of plastic road side barrier to be adopted on high speed corridor (100 km/h) of National Highways. The interim results shows that the laminate design which has been thoroughly tested for material characterization and finally adopted for fabrication of the FRP W-beam. The raw materials used for production of the beam and the prescribed fabrications techniques can withstand all weather conditions encountered in the country. A study has been undertaken to evaluate serviceability of pavement surface of the Eastern Express and Western Express Highways in Mumbai Region. The main objective of the project is to find out the present level of adequacy with regard to skid resistance (surface friction), riding quality (roughness index) and to provide quick corrective maintenance actions to achieve better serviceability.


Roads is the principal modes of transport in the NE Region. The share of road transport would be well over 90 percent in the total movement by surface transport in the Region. The riding quality and condition of main roads is generally fair to poor. The position is much worse in case of State Highways and Major District Roads. Only about 10 percent of the state highways can be said to be
structurally adequate to carry the legally permissible single axle load. Due to financial constraints, the states have not been able to provide strengthening overlays in any significant manner. From safety consideration, several sections of single-lane roads need to be widened to two lanes of carriageway. The states may need support to undertake a special programme of IRQP (Improvement in Riding Quality Programme) on the lines of National Highways. It needs to be recognised that construction cost per kilometre is maximum whereas possibility of private financing is minimal and resources available with the NE states is low. Hence infusion of central fund is a must.

12. **Ujjal Roy (2012)** - Indian civilization, being one of the oldest in the world (4000 to 3000 BC), saw the development and growth of roads along with its own development. Thus, while tracing out the history of development of roads in India, one is to study it along with the development in the political, economic and cultural life of this country. The history of roads is as old as the history of man on earth. The pre-historic men traced out a narrow way for going out for hunting the food. The narrow way was as footpath or pathway. *The pathway is considered as the first road mark laid on the surface of earth.* The utility and necessity of pathway gradually developed with the introduction of wheeled carts. The pathway was
widened into a roadway which was the beginning of road as a means of communication and transport.


This paper estimates the effect of access to transportation networks on regional economic outcomes in China over a twenty-period of rapid income growth. It addresses the problem of the endogenous placement of networks by exploiting the fact that these networks tend to connect historical cities. Our results show that proximity to transportation networks have a moderate positive causal effect on per capita GDP levels across sectors, but no effect on per capita GDP growth. The authors provide a simple theoretical framework with empirically testable predictions to interpret our results. We argue that our results are consistent with factor mobility playing an important role in determining the economic benefits of infrastructure development.

14. **Basic Road Statistics Of India (2012)**

Rehabilitation and construction of new roads are essential to provide sufficient, safe and efficient transportation for passenger and goods and are vital for making the economy competitive and for sustaining a high rate of growth. The road development in many ways exemplifies both the challenge and opportunity in infrastructure development. The present volume of
Basic Road Statistics of India gives comprehensive data for the years, 2009-2011 and attempts to provide a wide range of information on the status of road development in India in terms of its geographical spread and various categories of roads in terms of National Highways, State Highways, District Roads, Rural Roads, etc.

15. A.C. Sama (2012) - Development of rural roads brings multiple socio-economic benefits to the rural areas which form a strong base of the National economy and it is a powerful instrument for the socio-economic transformation of the villages. Awareness of these benefits and their evaluation plays a pivotal role for providing all weather rural roads. The quickly visible of these benefits are increased mobility, increased productivity, saving in cost of transportation of men and material and speedier flow of commodities beside, changes in the life style. Some of the significant benefits and factors for their evaluation are presented in the paper.

16. Shruti Tripathi (2013) - Creation of road transport infrastructure, through its direct and indirect effects, has a bearing on sustainability of growth and overall development of a country. It provides knowledge spillovers resulting from the whole agglomerated area via network dynamic externalities. The models based
on cost or production function that incorporate infrastructure but simply assume a positive effect are no longer satisfactory to take to the data, because they ignore any feedback effect. In this article, therefore, examine whether road transport infrastructure has a long-run equilibrium relationship with the macroeconomic variables such as output, employment and gross private capital formation or not. Second, the author use vector autoregression (VAR) approach to analyse the impact of road transport infrastructure on macroeconomic variables.

17. Madhavi Vedula, Pawan Nath G and B. P. Chandrashekar (2013) - Rural Roads Connectivity is one of the key components for rural development, as it promotes access to economic and social services, generating increased agricultural income and productive employment. While building rural roads, the provisions based on the parameters that affect the sustainability are to be made, but at minimum cost. The conventional methods and specifications tend to recommend technology and materials, however difficult and distance away they may be, which normally result in higher cost of construction. It is the duty of the engineers to spend every rupee of the taxpayer’s money with optional utility particularly under resource constraints. This call for introduction innovative approaches in rural roads building for achieving cost-
effectiveness. Though such methods and technologies were tried world over, they could not become popular in India, due to procedural constraints and lack of awareness/exposure. At this juncture, an attempt is made to bring in together innovative technologies and discuss their positive impacts so as to convince the field engineers in adopting such technologies at placed found effective.

18. **Amit Maheshwari (2013)** - Road Transportation is one of the important links that facilitates productivity and competitive efficiency, leading to rapid economic development of the country. It also plays a key role in bringing about the development of the remote regions by opening them to trade and investment and integrating them with the mainstream economy. Apart from being of key infrastructural value, an efficient transport system also plays a significant role in connecting the various parts of the country. However despite of its apparent importance the transport sector in India has received scant attention. The inadequacy of transport infrastructure and lack of funding from government have been the crux of problems confronting the road freight sector.

19. **S. Gangopadhyay and U. K. Guru Vittal (2014)** - Road transport is the most prevalent mode of transport in our country. However, large sections of our roads
still suffer from congestion, inadequate pavement thickness and road safety hazards. Significant segments of population in hilly and tribal areas do not have all weather road accessibility. CSIR-Central Road Research Institute (CRRI), New Delhi has a crucial role to play in the road development programmes being undertaken by the government. Over the years, CRRI has developed many new techniques and solutions to problems affecting road sector. Notable achievements include urban road traffic and air pollution study, techniques for usage of waste materials, safety audits for various sections of national highways, traffic and transportation studies of metropolitan cities, bridge design and rating, providing solutions to premature pavement failures across the country, ground improvement, landslide problem mitigation, etc.

20. **Harendra Mohan Singh (2014)** - Transport industry plays a vital role in the development of economic of a nation. In fact, the progress of a nation and progress of its transport industry is complementary to each other. The Road Transport industry has a lion’s share in India’s economic development. Due to easy accessibility, flexibility of operations, door to door service and reliability, Road Transport in India showed an increase in share of both passenger and freight traffic vis-à-vis other modes of transport. Transport sector accounts for 6.4% share in India’s Gross
Domestic Product (GDP). However, Road Transport has emerged as a dominant segment in India’s transportation sector with a share of 4.8% in India’s GDP comparison to railways that has a meager 1% share of GDP in 2011-12. With the help of this research paper the author has tried to examine the revenue structure of Road Transport sector in India. Besides this the author has also focused on some suggestion for improvement of revenue in Road Transport sector of India.
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19. IRC Highway Research Board (2010) - General Report on Road Research Work Done In India during 2008-09


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