Naveen Shodh Sansar (An International Refereed / Peer Review Multidisciplinary Research Journal)
RNI No.- MPHIN/2013/60638, ISSN 2320-8767, E- ISSN 2394-3793, Scientific Journal Impact Factor (SJIF)- 8.054,
January to March 2025 E-Journal, Volume I, Issue XLIX, ISO 9001:2015 - E2024049304 (QMS)

A Study of the Role of Indian Transportation System in the Economic Development of our Country

Dr. Dharmesh Jain* **Dr. Yogendra Singh Thakur**** **Dr. Suchitra Srivastava****

*Director, Department of MBA, SGI, Bhopal (M.P.) INDIA
** Asst. Prof., Department of Management, SIRTE, Bhopal (M.P.) INDIA
*** Prof., Department of Management, SIRTE, Bhopal (M.P.) INDIA

Abstract : Indian Transport System is one of the most important systems for transporting goods from one place to another. This paper will analyse the contribution transportation in economic development by quantitative Data. Its contribution in economic development is highly significant. The Indian transport system plays a vital role for the upliftmentof a country's economic development and its people as well. A well-maintained physical connectivity is very important for the infrastructural development of a country. Transportation is the life line of our country. It gives a boost to our economic work as well. This era of youth will become the witness of transportation development, rail transport system, waterways and airways. Growth of Indian transportation system is growing rapidly. It earns millions of rupees per year. This research paper aims to study deeply about the transportation system and its pros and cons. It will also investigate the development of transport sector and its economic contribution. The economic infrastructure development helps for the growth of employment, per capita income and control on poverty within the country. This is the fundamental work for the development of our country.

Keywords: Infrastructure, PPT Model, Economic reforms, PMGSY, Economic reforms.

Introduction - Because of India's well economic development in transport sector, it is growing rapidly. In all over the country this sector plays vitalrole. Economic infrastructure helps this sector both directly and indirectly. Transport sector is facing many challenges this time. In the developing country like India this sector is also facing much type of challenges. The government is creating many plans for this sector but at thesame time these efforts are not enough. Indian government is trying inthis field with more powerfulimpacts and policies. The government of our country is giving economic help to this sector as well. This paper will try to focus on this great field.

Research Methodology: The methodology of this research paper will use secondary data. Research reports,research works on transport system,research data from the government departments will be used herein the pilot study; primary data will be used for the purpose of information gathering. Central tendency will be used for the exploration of data; analysis of data, statistical tools will be used. Madhya Pradesh state will be the area of study for this research paper.

Review Of Literature: A Literature review on transportation examines the role of transport .It also examines the movement of goods and services in all over the country .Here are various modes of transport providing services to the development of our country .different modes of transport are here like Air Transport ,Road Transport ,Water Transport ,Pipelines, Land Transport Cable Transport and space transport .The review of literature generally based on the research work of Monteiro 2015.Economic development measured on the bases of per capita income and Gross Domestic Production .Human Development Index information plays great role for measuring the development of our country .

Research Gap : Despite significant growth in India's transportation sector, several research gaps remain. There is limited data on the integration and efficiency of multi-modal transport systems, especially in urban and rural linkages. The environmental impact of growing transportation demand is under-researched, particularly in relation to sustainable practices and green technologies. Employee and corporate transportation services are evolving, yet studies on service quality, cost-effectiveness, and safety standards are scarce. Additionally, the role of digital technologies and AI in optimizing transport operations is not fully explored in the Indian context. There is also a need for more localized studies that address region-specific transportation challenges and policy implications.

Statement Of The Problem: India's transport system, though expanding rapidly, faces critical challenges that hinder its efficiency, safety, and sustainability. The existing infrastructure struggles to meet the growing demand caused by urbanization, industrialization, and population growth. Congestion, inadequate public transport, poor road conditions, and insufficient last-mile connectivity continue to affect the daily mobility of millions. Additionally, the lack

of integration between various modes of transport leads to inefficiencies and increased travel time. Environmental concerns such as rising emissions and fuel consumption further aggravate the problem. There is an urgent need for a comprehensive, modernized, and inclusive transportation framework that addresses these issues and supports India's socio-economic development.

Hypothesis:

H0: Indian Transport system is playing vital role for economic development

H1: Indian transport system is not playing vital role for economic development

H0: It helps to reduce unemployment

H1: It doesn't help to reduce unemployment

H0: It helps to improve supply chain management

H1: It doesn't help to supply chain management.

Objectives Of This Research Paper: The objectives of this research paper are to find the solutionsfor the problems faced by the transport sector.

1. To understand the problem of unemployment and solution of it.
2. To analyse the rapid growth of infrastructure.
3. To understand the transporters problems.
4. To understand the economic benefits of this sector.

Scope Of The Study: This study explores the current state, challenges, and potential improvements within the Indian transport system. It covers various modes of transport including roadways, railways, airways, and waterways, with a special focus on urban mobility and public transport services. The study examines infrastructure quality, operational efficiency, policy frameworks, and the integration of technology in transport management. It also investigates environmental impacts and sustainability practices in the sector. Furthermore, the scope includes evaluating regional disparities in transport development and identifying opportunities for investment and innovation to enhance connectivity and accessibility across the country.

Tools Used In Research Paper On Indian Transport System:

1. Questionnaires & Surveys – To gather primary data from commuters, transport service providers, and government officials regarding usage patterns, satisfaction levels, and challenges faced.
2. Statistical Tools (SPSS, Excel, R) – For analysing quantitative data, identifying trends, and performing regression, correlation, or factor analysis.
3. GIS (Geographic Information System) – To map transport routes, identify traffic congestion zones, and study spatial distribution of transport facilities.
4. SWOT Analysis – To evaluate the strengths, weaknesses, opportunities, and threats within the Indian transport system.
5. Secondary Data Analysis – Using data from government reports, research articles, and databases like NITI Aayog, MoRTH, and Indian Railways for comparative and trend analysis.
6. Case Studies – To analyse successful transport models in cities like Delhi Metro or BRTS in Ahmedabad, and derive best practices.
7. Interview Method – For qualitative insights from transport experts, urban planners, and policymaker.

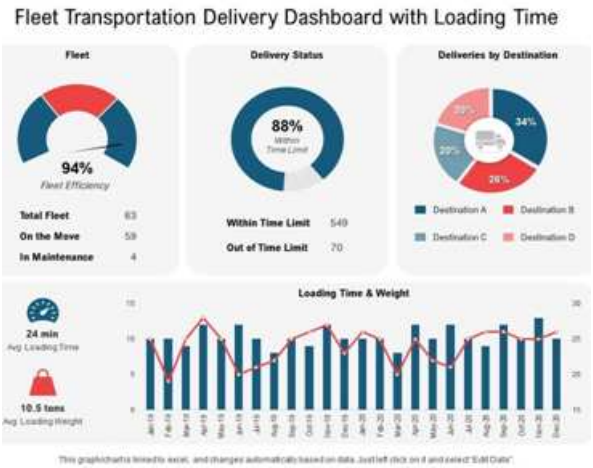
Limitations Of The Study:

1. Limited Primary Data – Due to time and resource constraints, the study may rely heavily on secondary data, limiting firsthand insights from commuters and stakeholders.
2. Geographical Scope – The research may focus on select regions or urban areas, which may not fully represent transportation issues in rural or remote parts of India.
3. Data Availability and Reliability – Inconsistent or outdated government data can affect the accuracy and depth of analysis.
4. Dynamic Policies and Reforms – Ongoing changes in transportation policies and infrastructure development may outpace the study's findings.
5. Technological Variations – Differences in the adoption of transport technologies across states may limit the generalization of results.
6. Environmental and Social Factors – Diverse socio-economic and environmental conditions across regions may influence transport needs and challenges differently, limiting uniform conclusions.

Transport System And Its Important:

1. Transport system helps the supply chain management system of our country as well.
2. It also helps people to move goods in all parts of the country.
3. It plays a significant role for the development of our economic growth.
4. It fosters the flow of goods and services in all parts of the country.
5. It also facilitates to Indian industries for rapid growth and production.
6. Road transport plays an important role for the economic development.

Transport System In India



By the Fleet delivery dashboard with loading time, this shows the great role of the transport system in our country.Fleet efficiency increases by better loading time. delivery time reduced with the help of transport. loading time and weight ratio also helps to better result in this field.The **delivery status** highlights that **88% of deliveries were completed within the scheduled time limit**, demonstrating strong operational punctuality. However, the **12% of out-of-time deliveries** suggests scope for improvement in route planning or real-time traffic management. Among the destinations, **Destination A** had the highest delivery share at **34%**, followed by **Destination B (26%)**, and both **Destinations C and D** accounted for **20% each**, offering insights into delivery concentration and demand.In terms of logistics handling, the **average loading time** is **24 minutes**, and the **average loading weight** is **10.5 tons**, which suggests a moderate turnaround per shipment.

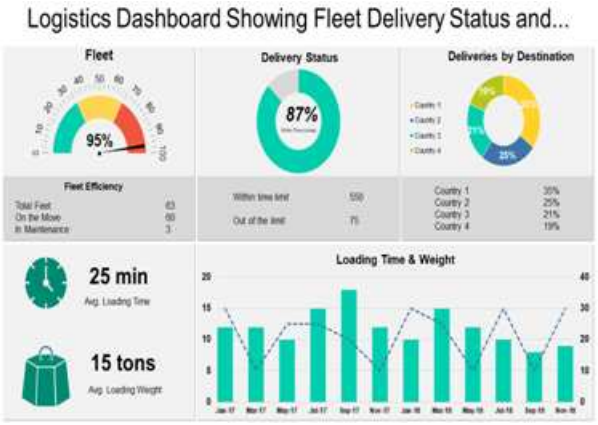
Logistic companies transport management can be understood with the help of the above graph.

Table 2: Total Number of Registered Motor Vehicles in India: 1951-2002

(in Thousands)

Year	All Vehicles	Two-Wheelers	Cars, Jeeps, and Taxis	Buses	Goods Vehicles	Others
1951	306	27	159	34	82	4
1961	665	88	310	57	168	42
1971	1865	576	682	94	343	170
1981	5391	2618	1160	162	554	897
1991	21374	14200	2954	331	1356	2533
1999	44875	31328	5556	540	2554	4897
2000	48857	34118	6143	562	2715	5319
2001(P)	54991	38556	7058	634	2948	5795
2002(P)	58863	41478	7571	669	3045	6100

Source: Transport Research Wing, Ministry of Road Transport & Highways, Government of India, New Delhi. Motor Transport Statistics of India. Various issues.



*The source of the above image is internet.

This logistics dashboard provides a comprehensive overview of fleet delivery performance. The fleet efficiency is high, with 95% of vehicles operational and only 3 out of 63 in maintenance. Delivery timeliness is strong, with 87% of deliveries made within the set time limit (550 on time vs. 75 late). The pie chart reveals that Count. This logistics dashboard provides a comprehensive overview of fleet delivery performance. The fleet efficiency is high, with 95% of vehicles operational and only 3 out of 63 in maintenance. Delivery timeliness is strong, with 87% of deliveries made within the set time limit (550 on time vs. 75 late). The pie chart reveals that Country 1 has the highest delivery share at 35%, followed by Country 2 at 25%. The average loading time is 25 minutes, and the average loading weight is 15 tons. The bar and line chart track monthly loading time and weight, showing noticeable fluctuations throughout the year, with peaks in September 2017 and July 2018.ry 1 has the highest delivery share at 35%, followed by Country 2 at 25%. The average loading time is 25 minutes, and the average loading weight is 15 tons. The bar and line chart track monthly loading time and weight, showing noticeable fluctuations throughout the year, with peaks in September 2017 and July 2018.

*The source of the above image is internet.

Inventory and logistics stock quantity and cost dashboards show the inventory turnover growth, stock quality increase,

average cost graph and quality purchase and average cost purchase and how the balance can bemade, easily understood easily The Inventory & Logistics Stock Quantity and Cost Dashboards present a detailed overview of inventory performance from 2015 to 2018. The stock quality saw a significant decline from 76k in 2016 to just 12k in 2018, indicating potential issues in stock management. Average cost and average cost per purchase surged sharply in 2018, reaching 28k and 650k respectively, despite a drastic reduction in quality purchases. The stock balance shows a shift from items less than 1 year old to older inventories over time. Inventory turnover improved to 1.8 days in 2018, indicating better efficiency, while cost of purchases and balances also show fluctuating trends, peaking in 2016 and 2018. This dashboard highlights the need for better cost control and inventory quality monitoring.

The growth of the India Employee Transportation Services Market from 2020 to a forecasted 2030. The market revenue rose from ₹ 1,094 crore in 2020 to ₹ 2,017.5 crore in 2023, reflecting a strong CAGR of 22.6% during that period. From 2024 onwards, growth is projected to continue at a moderate CAGR of 8.2%, reaching ₹ 3,430.7 crore by 2030. This trend indicates sustained demand and investment in employee transportation services. The steady increase highlights the sector's vital role in workforce mobility and corporate logistics in India.

Table 3. Private and Public Transport Vehicles in Selected Metropolitan Cities in India (as of March 31, 2000)

Metro politan Cities	Two-wheelers	Cars (including jeeps)	Taxies (including auto-rickshaws)	Buses	Others	Total
Ahmedabad	616738	104179	43865	14993	19316	799091
Bangalore	1164204	238374	77375	6380	63362	1549695
Chennai	848118	207860	45016	4409	44223	1149626
Delhi	2184581	869820	104747	37733	226593	3423474
Hyderabad	757684	99314	48898	2539	42189	950624
Jaipur	444889	76133	12513	14362	49760	597657
Kanpur	273208	323212	5252	882	23556	626110
Kolkata	298959	238560	41946	8586	75995	664046
Lucknow	344268	53069	15454	2816	26779	442386
Mumbai	407306	325473	156261	15414	65226	969680
Nagpur	272734	27573	10666	2788	17478	331239
Patna	184585	40357	16302	3785	30989	276018
Pune	443266	62885	44590	7827	34046	592614

Source: Transport Research Wing, Ministry of Road Transport & Highways, Government of India, New Delhi. *Motor Transport Statistics of India*. Various issues.

The percent change in employment across major U.S. industries from February 2020 to March 2022. It highlights that the transportation and warehousing industry saw the largest increase in employment, growing by nearly 10%. In contrast, industries like mining & logging, leisure & hospitality, and other services experienced significant job losses during this period. Despite the pandemic's economic impact, transportation and warehousing added over half a million jobs, while many other sectors still haven't recovered to pre-pandemic employment levels.

The number of travel and tourism jobs worldwide from 2019 to 2023, along with forecasts for 2024 and 2034.

1. In 2019, there were 334 million jobs.
2. The number dropped to 271 million in 2020 due to the COVID-19 pandemic.
3. Employment gradually recovered, reaching 330 million in 2023.
4. Forecasts show further growth to 348 million in 2024 and 449 million by 2034, indicating a strong long-term rebound in the travel and tourism sector.

The global number of travel and tourism jobs from 2019 to 2023, with projections for 2024 and 2034. Employment dropped sharply from 334 million in 2019 to 271 million in 2020 due to the COVID-19 pandemic. Gradual recovery is evident with jobs increasing to 330 million in 2023. The forecast predicts further growth, reaching 348 million in 2024 and 449 million by 2034. This reflects a strong revival and expansion of the travel and tourism sector worldwide.

Trend of goods moved, vehicle kilometres, and goods lifted in the UK from 2004 to 2018, alongside real UK GDP.

1. The 2008–09 recession caused a sharp drop in all three metrics.
2. Events like severe weather (2013) and major storms (2014, 2016) further impacted goods movement.
3. While goods moved steadily increased after 2012, vehicle kilometres and goods lifted remained lower.
4. In 2018, GDP grew by 1% and the number of GB heavy goods vehicles rose by 0.5% compared to 2017.

Findings On Indian Transportation System:

1. Overdependence on Road Transport – A majority of passenger and freight movement relies on roadways, leading to congestion, pollution, and increased road maintenance costs.
2. Urban Transport Challenges – Major cities face traffic congestion, inadequate public transport systems, and poor last-mile connectivity, affecting daily commuters.
3. Infrastructure Gaps – While significant investments are being made, many regions still suffer from poor road quality, insufficient railway connectivity, and underdeveloped logistics infrastructure.
4. Environmental Impact – High fuel consumption and vehicular emissions contribute to air pollution and climate change concerns, especially in urban centres.
5. Digital Integration is Emerging – Technologies like GPS tracking, e-ticketing, and app-based mobility services are being adopted, but unevenly across cities and transport modes.
6. Policy and Planning Issues – Lack of coordination

between different transport authorities and inconsistent implementation of policies hinder efficient transportation.

Suggestions On Indian Transport System:

1. Promote Integrated Transport Systems – Develop seamless connectivity between road, rail, metro, and waterways to enhance mobility and reduce congestion.
2. Invest in Public Transport – Strengthen and expand affordable, reliable, and eco-friendly public transport options like metros, buses, and BRT systems across cities and towns.
3. Adopt Smart Technologies – Implement intelligent traffic management systems, GPS tracking, and digital ticketing to improve operational efficiency and commuter experience.
4. Improve Rural Connectivity – Focus on upgrading roads and transport services in rural and remote areas to bridge regional disparities and support inclusive development.
5. Encourage Green Transport – Promote the use of electric vehicles, non-motorized transport (bicycles, walking paths), and renewable energy solutions to reduce environmental impact.

Recommendations:

1. Promote Integrated and Multimodal Transport Networks- Encourage the development of interconnected systems combining railways, roadways, airways, and waterways. Seamless integration through common ticketing, synchronized schedules, and smart mobility hubs can improve passenger convenience and logistics efficiency.

2. Invest in Green and Sustainable Transport - Prioritize eco-friendly initiatives like electric vehicle infrastructure, non-motorized transport (cycling, walking), and low-emission public transport systems (like electric buses and metro rail). This will reduce pollution, fuel dependence, and contribute to India's climate goals.

3. Enhance Infrastructure and Digitalization -Upgrade existing infrastructure—like highways, ports, and railway stations—with modern technologies such as Intelligent Transport Systems (ITS), GPS-based fleet tracking, and automated toll collection. Digital tools can improve safety, reduce delays, and support real-time data management.

References:-

1. Ministry of Road Transport and Highways (MoRTH). (2023). *Annual Report 2022-23*. Government of India. Retrieved from https://morth.nic.in
2. NITI Aayog. (2021). *Transforming Mobility in India: Towards Sustainable and Smart Transport Systems*. Retrieved from https://www.niti.gov.in
3. Indian Railways. (2023). *Statistical Summary 2022-23*. Ministry of Railways, Government of India. Retrieved from https://indianrailways.gov.in
4. TERI (The Energy and Resources Institute). (2020). *Sustainable Urban Transport in India: Role of the Government and Private Sector*. TERI Publications.
5. Singh, S. K. (2019). *Future of Transport in India: Vision 2030*. *Journal of Transport and Infrastructure*, 16(2), 45-58.
6. World Bank. (2020). *India - Enhancing Urban Mobility*. Retrieved from https://www.worldbank.org
7. RITES Ltd. (2016). *Transport Demand Forecast Study*. Ministry of Urban Development, Government of India.
8. Ministry of Housing and Urban Affairs (MoHUA). (2022). *Urban Transport Report*. Government of India. Retrieved from https://mohua.gov.in
9. International Energy Agency (IEA). (2021). *India Transport Energy Outlook*. Retrieved from https://www.iea.org
10. National Highways Authority of India (NHAI). (2023). *Annual Report*. Retrieved from https://nhai.gov.in
11. CSE (Centre for Science and Environment). (2020). *The Urban Commute and How it Contributes to Pollution and Energy Consumption*. Retrieved from https://www.cseindia.org
12. Asian Development Bank (ADB). (2021). *Developing India's Transport Sector: Issues, Challenges, and Opportunities*. Retrieved from https://www.adb.org
13. Ministry of Civil Aviation (MoCA). (2023). *Annual Report 2022-23*. Government of India. Retrieved from https://civilaviation.gov.in
14. Institute of Urban Transport (IUT). (2021). *Best Practices in Urban Transport in India*. Retrieved from https://www.iutindia.org
15. McKinsey & Company. (2020). *India's Transport Infrastructure: Challenges and Way Forward*. Retrieved from https://www.mckinsey.com
16. OECD (Organisation for Economic Co-operation and Development). (2021). *Decarbonising Urban Mobility in India*. Retrieved from https://www.oecd.org
17. Centre for Policy Research (CPR). (2019). *Mobility and Urban Transport in Indian Cities: Emerging Trends and Issues*. Retrieved from https://cprindia.org
18. International Transport Forum (ITF). (2022). *Improving Transport Resilience in India*. Retrieved from https://www.itf-oecd.org
19. NIUA (National Institute of Urban Affairs). (2020). *Smart Mobility in Indian Cities: Strategies and Innovations*. Retrieved from https://niua.in
20. Institute for Transportation and Development Policy (ITDP) India. (2021). *Best Practices for Sustainable Transport in India*. Retrieved from https://www.itdp.in

****