



Journal of Social Sciences and Management Research



ECONOMIC AND ENVIRONMENTAL IMPLICATION OF ROAD TRANSPORT SYSTEMS IN URBAN INDIA

-Mr. S. JOHN SUNDAR¹

ABSTRACT:

A well known and co-ordinate system of transport plays an important role in the sustained economic growth of a country. Urban population in India has increased from between 1951 and 2011. Transport sector in India is an extensive system comprising different modes of transport, but road transport is the dominant mode playing an important role in conveyance of goods and passengers and linking the centers of production, consumption and distribution. Road transport accounted for 4.7% of India's gross domestic product (GDP) in 2010-11. Although essential for mobility, trade, economic development and growth, integration and social inclusion, there are negative impacts of transportation as well especially that of energy intensive transport. Transport and its links to health and health inequalities suggest that it is important to assess both the direct and unintended indirect health and related impacts of transport initiatives and policies. Health Impact analysis provides a framework to assess the possible health impacts of interventions such as transport.

Keywords: *Economic Growth, Transportation, Environmental impacts, Health Inequalities.*

¹Assistant Professor of Economics,
Department of Economics,
Sacred Heart College (Autonomous),
Tirupattur District – 635 601.

Introduction:

Road transport can be classified as transporting either goods and materials or transporting people. The major advantage of road transport is that it can enable door-to-door delivery of goods and materials and can provide a very cost-effective means of cartage, loading and unloading. Sometimes road transport is the only way for carrying goods and people to and from rural areas which are not catered to by rail, water or air transport.

Delivery of goods between cities, towns and small villages is made possible only through road transport. However, in spite of various merits, road transport has some major limitations. For instance, there are more chances of accidents and breakdowns in case of road transport. So, motor transport is not as safe as other means of transport. Road transport is also quite less organised in comparison with other modes. It is irregular and undependable. Rates for road transportation are also unstable and unequal, while the speed in road transport is slow and limited, which is a major drawback.

Transporting bulky goods over long distances is also unsuitable and costly. In modern days, road transport has a serious negative impact on the environment. Building roads requires melting of tar or formulation of concrete, which may harm the associated environment.

Since roads have been a major enabler of motorized transport, these vehicles also emit a lot of pollution in the form of Nitrogen dioxide, volatile organic compounds, carbon monoxide and various harmful air pollutants, including benzene, which have an adverse respiratory health effects and a serious threat to global warming. While improvisation of roads is a serious topic of research, road transport of the future includes aspects like

solar panel roads and cars where solar cells have replaced asphalt or tar, and there are vehicles with electric motors reducing emission. Road transport of the future aims to work on these negativities and turn them around.

Roads in India:

The Indian road network is administered by various government authorities, given India's federal form of government. The following table shows the total length of India's road network by type of road and administering authority as of 31 March 2016.

Table - 1: Road Transports in India

Sl. No	Category	Managing Authority	Length (km)	Length share
1	National highways	Ministry of Road and Transport Highways	101,011	1.80%
2	State highways	Public works department of state/union territory	176,166	3.14%
3	Other PWD roads	Public works department of state/union territory	561,940	10.03%
4	Rural roads	Panchayats and PMGSY	3,935,337	70.23%
5	Urban roads	Municipal corporations and municipalities	509,730	9.10%
6	Project roads	Various government departments of states/union territories, and SAIL, NMDC and BRO	319,109	5.70%
		Total	5,603,293	100%

Sources: National Highways Authority of India.

Road transport has emerged as the dominant segment in India's transportation sector in comparison to railways that has a mere 1 percent share in 2009-10 (Planning commission, 2013). Passenger traffic in total passenger traffic carried by rail and road together has increased from 32 percent in 1951 to about 90 percent in 2011-12 (NTDPC, 2013). The transport sector in India is

dominated by road transport followed by railways.

Transport is an important part of India's economy:

A well known and co-ordinated system of transport plays an important role in the sustained economic growth of a country. The present transport system of India comprises several modes of transport including rail, road, coastal shipping, air transport, etc. India has one of the largest road networks in the world, aggregating to about 33 lakh kilometers at present. Though the National Highways, which is the responsibility of Central Government, has length of roads, carries over 40 percent of the total traffic across the length and breadth of the country. Road transport is vital to India's economy.

Table - 2: Indian Road Network: Major Categories

Sl. No	Road Network	Length (kilometer)	Percentage (%)
1	Expressways	200	0.01
2	National highways	96,261	2.88
3	State highways	131,899	3.94
4	Major district roads	467,763	13.98
5	Rural and other roads	2,650,000	79.20
6	Total	3,346,123	100.00

Sources: National Highways Authority of India.

It enables the country's transportation sector to contribute 4.7 percent towards India's gross domestic product, in comparison to railways that contributed 1 percent, in 2009–2010. Road transport has not gained in importance over the years despite significant barriers and inefficiencies in inter-state freight and passenger movement compared to railways and air. The government of India considers road network as critical to the country's development, social integration and security needs of the country.

India's transport systems problems:

Even with the current size of the urban population, Indian cities are facing a multitude of issues such as severe congestion; deteriorating air quality; increasing greenhouse gas (GHG) emissions from the transport sector; increasing road accidents; and an exploding growth in the number of private vehicles (largely motorcycles). With the urban population projected to more than double in the next generation, the situation could easily get out of control and thwart India's economic development efforts unless remedial measures are soon taken.

Review of Literature:

In the process of research, the researcher had gone through many research papers/previous studies concerning to the various dimensions of functioning of Road Transport. The past studies were required to understanding the research problem and in carrying out the formulated work. Hence, the various research studies related to the working of Passenger Road Transport are as follows.

Singh (1973) in his study "Organization, Control and Financing of Road Transport in Patiala" he assessed the public and private road transport, road passenger transport and road goods transport of Patiala district and found road goods transport were in good position in comparison of road transport and road passenger transport as its control in the public sector.

Lago, Patrick and McEnroe (1981) in their study "Transit service elasticities" focuses on passengers responses to change in headways, aggregate vehicle miles and components of travel time. They also evaluate other services attributes as reliabilities and comfort of ridership related to transit services of America and Canada. They found that

satisfaction level of commuters toward the services of public transport is to some extent.

Objectives of the study:

1. To study the important of Urban Road Transport in economic development.
2. To analyze the problems arises due to increased vehicle population.

Transport sector has a significant role to connect the harmony and economic strength of the nations. According to Planning Commission “To sustain the annual growth in the GDP of 9 percent during the eleventh plan would require increasing growth in road transport in both terms as passenger and freight transport.

Current Scenario Urban Transport in India:

- ❖ 20-fold rise in registered vehicles 1971-2001, 71% 2-wheelers
- ❖ Increased congestion, overcrowded roads => mental stress
- ❖ Increase in road accident deaths & hospitalizations 10 - 30%
- ❖ Lower physical activity => leading risk factor for diseases like obesity, type 2 diabetes, heart disease, and cancer.
- ❖ Constant exposure to high PM10 and PM2.5 causes adverse respiratory health problems => coughing, wheezing, reduced lung function, asthma attacks, and in some cases, heart failure, lung cancer and even early death 70% of particulate matter in cities like Delhi is from vehicles.
- ❖ Transport facilities used far beyond design capacity => Deteriorated levels of service for all users.

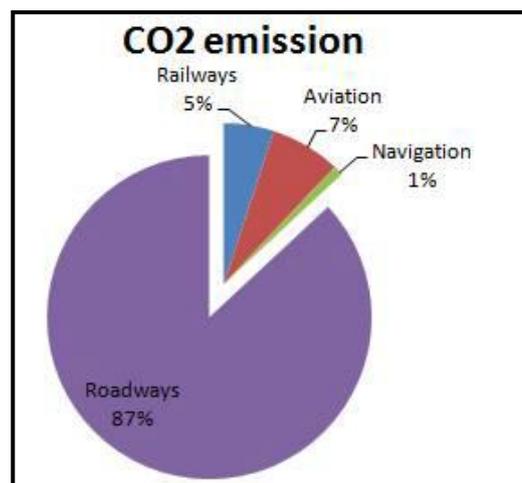
- ❖ Incompatible mix of motorized & non-motorized vehicles traveling at widely different speeds.

Issues: Air Pollution:

- ❖ 620,000 premature deaths/year in Indian adults due to PM pollution.
- ❖ Health costs from bad air quality = 3% of Indian GDP.
- ❖ Vehicles contribute >70% to air pollution in many cities.

Climate change is principally the result of Green House Gas (GhG) Emission emanating from carbon based energy consumption, or the burning of fossil fuels. Motorized transport is emerging as a significant contributor of carbon emissions. These prospects reinforce the urgency of producing cost effective GhG reduction solutions for transport. In 2007, road sector accounted for nearly 87 percent of the total emission from the transport sector (Fig.1). In BAU scenario, this number is expected to increase four times by 2030 (CPCB, 2011).

Figure - 3: Share of CO2 equivalent emission from transport sector



Road sector is highly energy extensive in comparison to railways. It is also the largest consumer of energy within the transport

sector from petroleum products. The road transport sector, comprising both passenger and freight transport accounts for nearly 72 percent of High speed Diesel (HSD) consumption in India (MoPNG, 2012).

Urban Freight: Its contribution to environmental problems:

- ❖ In India, research shows that the urban freight vehicle travel in total metropolitan vehicle travel is substantial with a 37% contribution
- ❖ Goods vehicles constituted 5.3 per cent of total registered vehicle population during 2008-09. Domestic sales of commercial freight vehicles increased Urban Freight: Its contribution to environmental problems 31
- ❖ Domestic sales of commercial freight vehicles increased by 30 per cent from 2009-10 to 2010-11.
- ❖ Otherwise, in India there is generally a lack of data on freight transport impacts in terms of local and global emissions (on the national level, and even more so on the urban level
- ❖ Internationally also rather limited knowledge – some isolated evidence is available e.g. from Europe (see next slide)

Conclusion:

This study highlights some of the adverse environmental and health impacts of urban transportation in India where planning and management of transportation activities has not kept pace with increasing demands due to rapid urbanization. The role of the

government is crucial in planning and strict implementation of safety measures; there is therefore urgent need for capacity building and research, strengthening and enabling legal, institutional, and financial environment for road safety. Health system strengthening should be given priority to achieve significant reduction of health effects of road transport. Although policies, rules and intent are in place, results will only be visible if implementation, enforcement and monitoring are done effectively.

References:

1. Bhuyan PJ, Ahmed F. Road traffic accident: An emerging public health problem in Assam. *Indian J Community Med.* 2013.
2. S. Singh, Green Growth and Transport in India, The Energy and Resources Institute, Government of India, New Delhi, 2015.
3. Seema Jain, Pawan kumar dhiman, "Road transport in economic development" *International Journal of Management and Applied Science*, ISSN: 2394-7926 Volume-3, Issue-9, Sep.-2017.
4. Ministry of Road Transport and Highways, Association of State Road of Transport Undertakings (ASRTU), Government of India, 2016.
5. National Transport Development Policy Committee, Trends in Growth and Development of Transport, Government of India, 2013.
6. Planning Commission, Government of India, 2015.
7. Report of Ministry of Road, Transport and Highways. 2015.