



A Road Map To Indian Road

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ABSTRACT

The trend in transport demand profile in India has been characterized by an increasing share of road transport and increasing share of personalized, transport (especially the motorized two wheeler). While the road infrastructure based facilitation of road transport especially in the 2007-2013 period, would have most certainly contributed to the jump in GDP growth, the impact on energy and environment and safety would be for from desirable.

KEYWORDS

The transport sector accounts for nearly 18 per cent of the total energy consumed in India, second only to the industrial sector. Nearly 98 percent of the energy needs of transportation are met through petroleum products and almost half of the total consumption of petroleum products in India occurs on account of transport activities. This demand for energy is expected to grow if no action is taken.

Transportation, being a major contributor to greenhouse gas emissions is the prime target for reducing air pollution and obtaining sustainable environment.

The continued growth of the transport sector may be vital for further economic development, but it has exacerbate. India's critical air pollution problem, vehicular emissions Increasing leading to poor air quality have significant negative impacts on public health. Traffic related air pollution has been shown to lead to premature morbidity and mortality. A study supported by the World Health Organization estimated about 1,54,000 people died in India in 2010 as a result of ambient fine particulate matter (PM 2.5) alone. This number has most likely increased since.

A growing concern for environmental sustainability directs more attention to 'sustainable transport' and 'green transport' In simple terms the majority of transport except for walking and other non-motorized modes is not green or sustainable. Most transport uses some form of fossil fuel and is likely to do so for the foreseeable future, modern urban rail systems use electricity as their motive source that is almost entirely produced by the combustion of fossil fuels.

Of the 142 metric tone (MT) Co₂ emissions released by the transport sector in 2007, 87 per cent were on account of road based vehicular activities. If no action is taken, overall transport Co₂ emissions can come close to 1000 MT by 2030, a fourfold increase from 260 MT in 2010. The result of high growth rate the new vehicle registrations are expected to continue at least through the remainder of this decade. India has come a long way over the last two decades in reducing vehicle emission. Still associated poor air quality and public health problems drive the need for further emission control. Many Indian cities have been ranked among the most polluted in the world. Vehicles are responsible for the majority of oxides of nitrogen emission and 30-50 percent of particulate matter (PM) emission, in addition to significant hydrocarbons (HC) and carbon monoxide (CO) emission. The problem is exacerbated by the preference for diesel cars in India due to diesel and petrol subsidies. Currently new diesel cars are allowed to emit much

more NO and PM than gasoline cars.

The transport demand can be categorized into freight and passenger. There are no clear estimates on the relative value, effort on environmental impact of the two domains. However examining the data of Indian Railways from a revenue perspective about 70 percent of the economic value is generated from freight. Similarly 80 per cent of interregional road movement would be accounted for by freight vehicles as per toll booth information.

The National Forest Policy envisages 33 per cent of the geographical area should be under forest or tree cover, but the notified forest cover is only about 22 per cent. The emphasis is not only on the trees planted, but also on how many of them survive and are useful for the local communities. Already we have felled down lakhs and lakhs of tree species along side of road ways in the name of modernization and expansion of roads. So in one side we are reducing our forest cover in the name of development in another side we are encouraging road transport through various direct and indirect strategies. So the goal of sustainable developments is so vast and a problem like climate change is so complex that we need to adopt the best available solutions without delay monitor the outcome and further improve the tried solution with new knowledge and experience: a flexible and adaptive problem solving strategy. The strategy will also help in curtailing the number of road accidents in India, at the same time it should provide dignified employment to local people and communities.

Table 1 : Vehicle ownership in India

S.No	Year	Number of Registered Motor Vehicles (in thousand)
1	1951	306
2	1961	665
3	1971	1875
4	1981	5391
5	1991	21374
6	2001	54991
7	2007	96707
8	2008	105353
9	2009	114951
10	2010	127746
11	2011	141832
12	2012	159491

(Source Road Transport Year Book 2011-12)

Table : 2 Modal Share of Freight Traffic

Mode	2007-08 (RITES)	
	btkm	Per cent share
Road	706	50.0
Rail	508.0	36.0
Pipe lines	105.0	7.50
Coastal shipping	86.0	6.0
Inland water transport	3.5	0.24
Airways	0.3	0.02
Total	1408.8	100.00

Source: Total Transport System Study (TTSS) by RITES Limited as reported in NTDPCC 2013.

For the development of these rural roads, Pradhan Mantri Gram Sadak Yojana (or "Prime Minister Rural Roads Scheme"), was launched in December 2000 by the Indian government provide connectivity to unconnected rural habitations. The scheme envisions that these roads will be constructed and maintained by the village panchayats. In some parts of India, where the government has attempted to manage it directly as a local social spending program, this program has produced limited results and no lasting change over 10 years, in either the quality or quantity of rural road network.

In other parts of India, the Pradhan Mantri Gram Sadak Yojana and a sister program named Bharat Nirman (or Build India) have privatized the rural road construction projects and deployed contractors. The effort has aimed to build all-season, single lane, paved asphalted roads that connect India's rural and remote areas. A significant portion of funding for these projects has come from the World Bank and Asian Development Bank. This has produced results, which are presented in the table below.

Rural road network in India, trends over 10 years

	Kilometers in 2001	Kilometers as of May 2011	Kilometers under construction in 2011
Total rural roads	2.7 million	3.1million	0.1 million
Paved, not maintained rural roads	0.5 million		
Unpaved rural	2.2 million	1.9 million	
Paved, maintained rural roads		728.871	53.634
New rural roads		322.900	82.743

In a 2011 report, The Economist noted the rural road scheme and Mahatma Gandhi National Rural Employment Guarantee to be India's biggest single welfare project, costing over \$8 billion a year. Alone, it eats up over 3% of all public spending in India. The report claims the minister in charge of the central government department administering the program, criticises uneven, patchy implementation of the scheme. He describes wasteful construction of items such as roads that quickly crumble away. The results, in many areas, fall short of the huge sums spent. The funds aimed to employ local villagers through their panchayats is not changing the quality of rural roads, rather ending up in wasteful spending and corrupt government officials' pockets. The gloomiest estimates suggest two-thirds of allocated scheme funds is being squandered. A review published by the Ministry in September 2011 found that skilled technicians were unavailable at almost every site. There were rules banning the use of machinery or contractors, labour is usually by shovel, resulting in patchy construction of roads, drains, ponds, dams and other assets that are of very poor quality. The government scheme has failed to improve India's awful rural infrastructure. These rural roads get washed away

each monsoon, only to be rebuilt, badly, the following year.

Issues

The main roads in India are under huge pressure and in great need of modernisation in order to handle the increased requirements of the Indian economy. In addition to maintenance, the expansion of the network and widening of existing roads is becoming increasingly important. This would then enable the roads to handle increased traffic, and also allow for a corresponding increase in the average movement speed on India's roads.

In 2009, lane capacity was low and only about 16% of India's roads were four lanes or above. A 2007 study found that the congestion on India's highways reduced average truck and bus speeds to 30-40 km / h (19-25 mph); road maintenance was under-funded, and some 40 percent of villages in India lacked access to all-weather roads. While the PMGSY rural road program mentioned above has, by 2011, connected 90 percent of villages identified in 2005 as without access, many remote villages in India were still without access to a single lane, paved road as of May 2011.

The World Health Organization compilation of road network safety data for major economies found India to have the highest number of road fatalities in the World, with 105,000 road-accident caused deaths in 2006. However, adjusted for India's larger population, the accident and fatalities rates are similar to major economies. Over 2004-2007, India had a road fatality rate of 132 deaths per million citizens, compared to 131 deaths per million citizens in the United States. Non-fatal accident rates reported on Indian roads was 429 accidents per million citizens, compared to 412 accidents per million citizens in China, and 1101 accidents per million citizens in the United States. The report notes that not all accidents in India and China are reported and recorded.

The low road densities per 1000 people has created significant congestion and slow speeds on existing roads inside cities. Because of the congestion, the fuel efficiency of the vehicles in India is very low. This increases the overall fuel consumption per equivalent kilometer travelled, besides resulting in heavy pollution since the engines run very inefficiently at such low speeds. Pollutants from poor road network and resultant poor fuel efficiencies include hydrocarbons, NOx, SOx, methane, carbon monoxide and carbon dioxide - all of which cause health problems, adverse climate effects and related environmental damage.

Due to rising prices of petroleum, a non-renewable resource, some have urged the Indian government to focus instead on Improving public transport like the Indian Railways and rapid transit systems. Many cities have proposed, or are implementing metros and mass transit systems.

India's recent efforts to build modern highways and improve its road network has made a significant difference in trucking logistics. According to DHL, a global logistics company, the average time to truck shipments from New Delhi to Bengaluru (Bangalore), a 2000+ kilo metre journey, had dropped in 2008, to about five days. By 2010, the average time to complete a road trip from New Delhi to Mumbai, a 1400 kilometer journey, had dropped to about 35 hours. In contrast, a similar journey takes about half the time in China, and one third in European Union countries. In a 2010 report, KPMG - one of the world's largest audit and advisory services company - noted marked improvements in Indian road network and logistics efficiencies in recent years. The report also identified the competitive challenges faced by India. Some findings of this report include:

The average road speed in India has increased to 30-40 kilometers per hour. The worldwide average road speed, which includes China, ranges between 60-80 kilometers per hour.

Four lane road network in India has increased to 7,000 kilometers. China, in comparison, has 34,000 kilometers of equivalent

quality four lane roads.

Average surface freight costs have dropped to US\$0.07 per kilometer. Japan, in comparison, has average surface freight costs of US\$0,037 per kilometer.

The KPMG report also notes that India's road network logistics and transportation bottlenecks hinder its GDP growth by one to two percent (US\$16 billion - US\$32 billion). In India's 2010 per capita income basis, this is equivalent to a loss of about 10 million new jobs every year. Poor rural roads and traffic congestion inside the cities remains a challenge in India. The planned addition of over 12,000 kilometers of expressways in the next 10 years may help address some of such issues. The constraints and issues with Indian road network differ from one state to another. Some states, such as Tamil Nadu, Gujarat, have remarkably better road network than others.

Questions:

1. Discuss the problems of Indian road transport in the era of liberalization?
2. List out the strategies to tide over the problems of road transport?
3. How you are giving to mitigate the environmental problems of road transport?