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## **Transport Management in Urban Areas**

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### **Abstract**

Transport Management in urban areas has become the need of the hour for sustainable development, the last two decades have witnessed India's population grow by 3% per year and is currently 377 million as per 2011 census. It accounts for 31 percent of the total population and it is projected that by 2026, 38% of the Indians will live in cities and the total urban population will rise to 534 million ("Population Projections, 2026"2006). The total number of motor vehicles in India has increased from 52.37 million in 2000 to 121.63 million in 2011. If the policies of transport are not formulated in a right manner, then it may lead to various problems like congestion, reduced travel speeds, safety issues, air pollution, energy consumption etc.

The transport Demand Profile in India has been characterised by an increasing share of road transport and personalised transport. In this context, urban cities play a vital role in generating economic growth and prosperity. Transport Demand is mainly characterised into two parts- Domestic and International movements. Transport Infrastructure development needs a good regulatory framework. The paper highlights the ways to manage urban transport needs, the need for green transport, challenges, and issues related to road construction and road asset management system.

### **Transport Management: Present Scenario**

The urban population of India is expected to raise up to 37% by 2021. The number of metro cities is also on the rise and they have a million plus population. The ever-increasing per capita cost leads to the provision of requisite infrastructure and better civic amenities. The toll booth movement highlights that 80% of the international road movement is accounted for freight vehicles. The modal share of freight traffic is shown below:



<b>MODE</b>	<b>2007(RITES) BT KM</b>	<b>2008 (RITES) PERCENT SHARE</b>
ROAD*	706	50
RAIL*	508	36
PIPELINES	105	7.5
COASTAL SHIPPING	86	6
INLAND WATER TRANSPORT (IWT)	3.5	0.24
AIRWAYS	0.3	0.02
TOTAL	1408.8	100

*Source: Total Transport System Study (Ttss) By Rites Limited as Reported in NTDPC 2013*

The above table highlights the importance of revenue by proper road management.

The aim of NTDPC (National Transport Development Policy Committee) is to encourage the rail transport up to 50% in six major metropolitan cities of India viz Bangalore, Kolkata, Chennai, Delhi, Hyderabad and Mumbai that have outpaced the population growth. As per their data, motorcycle ownership has increased up to 30% and sadly half of the population do not even possess a license to drive. Pipelines which are utilised for petroleum transport usually are not paid attention too. There are a large number of airports which are not earning profits or are earning less profit. Airways these days are not streamlined enough to treat domestic and international movements differently.

### **National Urban Transport Policy :2006**

#### **Objectives:**

- ❖ Incorporating urban transportation as an important parameter at the urban planning stage.
- ❖ Encouraging integrated land use and transport planning in all the cities so that the travel distances are minimised



- ❖ Improving access to business markets
- ❖ Bringing about more equitable allocation of road space with people rather than vehicles.
- ❖ Encourage greater public transport
- ❖ Establishing effective regulatory and enforcement mechanisms that allow playing field for all regulators.
- ❖ Introducing intelligent transport systems for traffic management
- ❖ Addressing concerns of road safety and trauma response
- ❖ Reducing pollution levels through changes in travelling practices , enforcement, strict norms, technological improvements etc
- ❖ Building capacity to plan for sustainable development
- ❖ Associating the private sector
- ❖ Taking up pilot projects.

### **Increase In Travel Demand**

City Category	Population	Passenger trips/day (in Lakhs)			
		2007	2011	2021	2031
Category-1 a	<5 lakhs with plain terrain	8.5	10.0	13.4	17.2
Category-1b	<5 lakhs with hilly terrain	7.5	8.8	12.0	15.6
Category-2	5-10 lakhs	263.1	308.3	423.0	558.3
Category-3	10-20 lakhs	427.7	498.2	675.6	871.9
Category-4	20-40 lakhs	183.6	210.4	309.6	433.5
Category-5	40-80 lakhs	403.6	469.8	675.2	868.0

*Source: Ministry of Shipping, Road transport and highways, Government of India.*

The above table shows the increasing demand of travel as per the categories, seeing the above data it is pretty much clear that daily trips are likely to double, more in larger cities as compared to smaller cities. Government of India had launched JNNURM in 2005 to provide assistance to cities for various urban development projects including urban transport. The mission is reform based and Aims at Strengthening of Urban Local Bodies in Selected Cities of India.



### Urban Transport Rail Based Metro:Cost

City	Length (Km.)	Cost (Rs. Crores)
Delhi	121.26	19251
Mumbai	62.89	18634
Bangalore	33.00	6395
Kolkata	13.77	5068
Chennai	50.00	9347
Hyderabad	66.39	8760

Source: Ministry of Urban Development, Government of India, 2009

The above table very clearly shows that the cost incurred on the metro's being launched by the government is pretty high, but the usage of private vehicles in comparison to public vehicles is low. The recent initiative which is taken by the Government of Delhi is the running of odd and even numbered cars in order to manage congestion and traffic and combat problems like air pollution, congestion etc.

### Problems Faced Due to Improper Transport Management

1. **Poor Air Quality:** The recent report published by the central pollution control board highlights the following:

CITIES	AQI(AIR QUALITY INDEX) JANUARY 2016, -2021
DELHI	362
JAIPUR	294
KANPUR	359
LUCKNOW	339
NAVI MUMBAI	103

Source: CPCB Report January, 2016



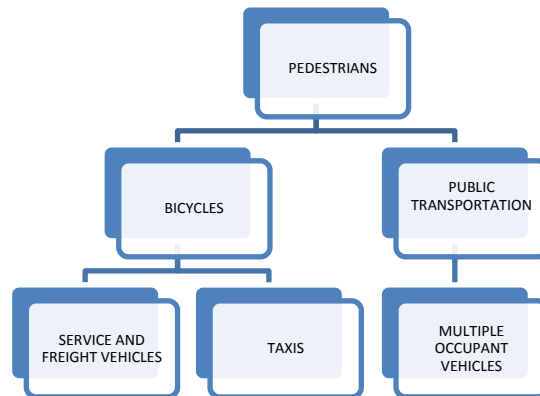
In the above report AQI are determined based on the concentrations of seven pollutants including PM 2.5(fine, respirable particles), sulphur dioxide, nitrogen dioxide (NO), and carbon monoxide (CO)

Cities with the worst AQIs are mostly in the Indo gigantic plain, the role of traffic in making these cities not good or fit for living is enormous.

2. **CONGESTION:** Increased travels, increase in population and poor road management has led to problems of congestion affecting the health of the people living in urban cities to a larger extent.
3. **REDUCED TRAVEL SPEEDS:** The high rate of population and increase in congestion decrease the travel speed of the people to commute from one place to another.
4. **SAFETY:** Road accidents have increased to an alarming rate of 22%. Fatality Risk (defined as, road accidents) has increased. As per the latest Times Of India Report On Road Accidents , it is alarming to note that 38 people die per week due to road accidents in Delhi alone. Traffic crashes in Indian cities pose a severe health problem resulting in 2,00,000 deaths each year and 1.2 million serious injuries.
5. **DECREASE IN FOREGN EXCHANGE RESERVES:** more traffic medium lead to more fuel consumption, the import billing of fuel have gone up from Rs 53 million to USD 883 million in 1981 nearly 140 times (Ministry Of Petroleum: 2011-2012). According to World Bank Statistics, India has 18 cars per 100 people (2009).

### **Encouraging Sustainability**

When we talk about sustainability under transport there are two things that are emphasised upon non-motorised transport and walking. The drastic use of private cars may be reduced by using public transports, for e.g., the use of buses and railways could be increased. A Green Transportation Hierarchy is the one which shows the ideal use of transport and their advantages, it is shown as under:



### Green transport Hierarchy

*SOURCE: ROAD TRANSPORT YEAR BOOK, (2011-12)*

The above hierarchy by the road transport department clearly defines that in order to encourage green transport it is extremely important that government should pay special attention to pedestrians, proper roads should be developed and the space for walking should be made so that people can travel by walking in majority of the cases.

The sustainability of transport and its impact is divided into three cases:



Testing of vehicles becomes an important criterion because the vehicles being used should not create problem and should not lead to more pollution. Emission Control needs to be stronger; the initial emission testing also becomes further most important. Effective transport management will not only protect the environment but would help in reducing global warming.



The Auto Fuel Policy Committee has given the following recommendations, 2013

- 50 ppm sulphur fuels should be mandated nationwide by the middle of this decade and 10ppm sulphur should be mandated by 2020.
- Bharat IV fuel quality standard should be implemented nationwide by the middle of this decade.
- India should also mandate all new vehicles to have on board refuelling vapour recovery (ORVR) systems at the same time.
- By mid-decade, India should mandate stage I controls when the retail outlets are supplied with fuel, and stage II controls for vehicle refuelling.

In April, 2014, the expert group on low carbon strategies for inclusive growth chaired by Dr. Kirit Parikh, mentioned in the report that urban centres should be encouraged to integrate non-motorised transport as an integral component of any transport plans. It has highlighted the benefits of non-motorised transport would not be limited to achieving a lower carbon scenario for the country but it would also have large social benefits. Once non-motorised transport is facilitated, parking fees could be raised to improve upon the problem of congestion.

### **Concept Of Green Highway:**

It pays attention on the sustainable development, includes roadways, it is designed keeping in mind the environment and ecological sustainability, Recently Union Minister of Road Transport and Highways launched the Green Highways (Plantation, Transplantation, Beautification and Maintenance) Policy, 2015. The aim was to promote greening of high corridors with participation of the community, farmers, private sectors, NGO's and government institutions. The target for the first year is to plant a tree, along 6000 km's of highways for which 12,000 hectares of land is already available.

**Vision:** To develop eco-friendly National Highways with the participation of the community, NGO's, private sector, institutions, government agencies and the forest department for economic growth and development in sustainable manner.



### **Objectives:**

- Developing a framework for the plantation of trees
- Providing the shade on glaring hot roads.
- Reducing the impact on noise pollution and soil erosion.
- Preventing the glare from the headlights of incoming vehicles and generating employment.

The policy envisages a strict system of auditing whereby money will be released by the government to the empanelled agencies only if they have achieved a survival rate of 90% of the previous year.

The policy also includes the incentives' part, as the best performance and the best agency is awarded. It has opened a number of opportunities in the area. The policy is one of the biggest initiatives encouraged by the government.

“**Swacch Rail, Swacch Bharat**” another initiative taken by the government is also one of the steps taken to promote a sense of cleanliness and sustainability among the people.

**Bio Toilet Tank-** Indian railways has provided bio toilet tanks for use in the coaches. The technology has been developed jointly by IR and DRDO (Defence Research and Development Organisations) the department is striving for elimination of direct discharge toilet system from all newly manufactured coaches by 2016-17. Provisions have also been made for dustbins in new non-AC coaches.

**E Tickets:** Railways in order to reduce the use of papers have come up with facilities of booking the tickets online, other services like booking of retiring rooms, and e catering have also been provided Wi-Fi has been commissioned at 11 stations and all A1 and A category stations are targeted for completion by Dec 2016

### **Roadway Traffic: A Critical Challenge**

A wide variation in seasons, climate, and a country which is engulfed in so many other countries, managing roadways is a critical problem. Total road network in India is about 4.6 million km in which rural roads are of 2.6 million km. The latest road development plan vision 2021 has emphasised on planned rural road network development at the district level





with the target of connecting all habitations and populations over 100 by all-weather roads. In 2000, it was observed that about 40 % of the habitations in the country were not connected by roads even though effort had been made at the state government level over a period of time. Moreover, a large majority of the rural roads were not in good condition due to the poor quality of construction and maintenance (Sarkar et al.,2007)

As per the Department of Transportation, India the challenges that they face are:

1. Funding
2. Refocusing and restructuring surface transportation policies and programs.
3. Improving transportation safety.
4. Implementing the next generation air transportation.
5. Improving information safety.

### **Other Factors:**

The Federal motor fuel tax rate has not increased since 1993, meaning that 18.4% gallon tax on motor fuels enacted in 1993 is worth about 11.5 cents today. The Congressional Budget Office estimates as of March 2012 that to maintain current spending levels plus inflation between 2013 and 2022, the Highway Trust Fund will require over \$125 million more than it is expected to take over that period. There is a major challenge in front of TIFIA (Transportation Infrastructure Financing Innovation Act) as it has changed the eligible federal share of the program by increasing it.

Some of the critical issues faced are:

- Connecting villages with low populations often become a problem, thus there is a need for proper planning of roads.
- Accessibility and habitations are often confused it is not necessary that road connectivity reaches everyone, people who have their habitats situated deep inside the main road especially in case of desert areas often are not catered at all.
- Growing Traffic and growing population are increasing day by day.
- A proper maintenance plan with optimum allocation of resources is a major challenge.



- The construction of roads is becoming more and more expensive day by day, and the material used for the construction of road is becoming more scarce.
- In hilly trains with number of rivers and streams, it is extremely difficult to provide connectivity.

### **Conclusion And Suggestions:**

Though it is true that government has taken various steps at state level and centre level to aid the management of transport but the overall output has not contributed much, somewhere down the line the people of the region also play a major role in supporting the policies and the reforms, only government alone cannot help in building traffic sense, road sense among the people. It is the responsibility of every person living in our country to first contribute at an individual level by maintaining a clean environment, following all the rules and regulations and respecting the work done by others, then only the nation as a whole will be able to tackle the problem on transport. Some of the other suggestions would be:

- There should be clear estimates between freight and passengers as their relative values are not calculated.
- There should be separation between infrastructure and services provided by the government.
- Customer orientation and increase in rail capacity is extremely important in order to encourage public transport.
- Open toilets used in the railways should be reformed as it discourages sustainability.
- Road connectivity should reach settlements from villages.
- Coastal transport may be increased as India has a long coastline.
- Creation of Logistics Park.
- Construction of flyovers and creation of better roads for traffic management.



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