

Transport Infrastructure: Way Forward

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The trend in transport demand profile in India has been characterised by an increasing share of road transport and increasing share of personalised transport (especially the motorised two wheeler). While the road infrastructure based facilitation of road transport, especially in the 2000-2007 period (NHDP and PMGSY), would have most certainly contributed to the jump in GDP growth, the impact on energy and environment, and safety would be far from desirable. It is important to reverse the trend of increasing market share of road and personalised transport towards more environment friendly transport modes like rail and water.

Transport demand can at the first level, be categorised into international and domestic movement (including for export/import). Ports and airports are the gateways for the export/import traffic. We first examine domestic movement and then international.

At the next level, the transport demand can be categorised into freight and passenger. There are no clear estimates on the relative value, effort or environmental impact of the two domains. However, examining the data

of Indian Railways from a revenue perspective, about 70 per cent 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.

One of the major concerns of transport infrastructure planning is the non availability of authentic data, especially in the road domain. The last attempt at a scientific sample survey based study for freight transport was conducted in 2007-08 at the behest of the then Planning Commission by RITES. Based on this study, the following is the estimated modal share of about 1400 billion net tonne km (btkm) of freight movement in the country.

It is time that we put together a mechanism for a more scientific and periodic collection of road data. It should be noted that this information is available in electronic means with the large number of trucking companies and the shippers.

The National Transport Development Policy Committee (NTDPC) has tried to estimate the overall freight traffic until 2031-32, using a growth rate of 1.2 times the

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Table 1: Modal Share of Freight Traffic		
Mode	2007-08 (RITES)	
	btkm	per cent Share
Road*	706.0	50.00
Rail*	508.0	36.00
Pipelines	105.0	7.50
Coastal Shipping	86.0	6.00
Inland Water Transport (IWT)	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 NTDP 2013
*Excluding intra-regional traffic

GDP growth rate. This multiplier is questionable, both based on past traffic growth, which has not exceeded the GDP growth rate, and given that India has about 60 per cent service sector share in the GDP. As per this multiplier of 1.2, the expected freight traffic would be as below.

Table 2: Projection of Rail Freight Traffic	
Year	btkm
2011-12	2053
2016-17	3056
2021-22	4834
2026-27	7856
2031-32	13118

Source: NTDP 2013

The NTDP would like to see an increasing share of rail transport from 35 per cent to 50 per cent. This would imply that the btkm of rail freight would have to go up from 650 in 2013-14 to ten times, ie 6500, by 2031-32. It would also be important to see how water (coastal shipping and IWT) can increase its modal share, with pipelines sustaining their share, bringing these environment friendly modes to at least 20 per cent. If this were possible, then road share can be brought down to 30 per cent, leading to significant savings in carbon impact.

Increasing rail share would not come easy unless the important aspects

of customer orientation and capacity enhancement are addressed. The right direction for this would be to increase separation between infrastructure and services, with services coming under structures that can be more market oriented, including, if need be, through competition and privatisation.

Customer orientation was attempted in opening up container services to the private sector. The experience has not been as anticipated. There are lessons to be learnt in terms of clearly defining the roles of the authority who is also the infrastructure provider and the service provider. Appropriate oversight mechanisms in the form of a commercial regulator would be required. There are huge opportunities to improve customer orientation in the passenger domain.

Capacity enhancements in rail need to come both from additional modernised infrastructure, like the dedicated freight corridors, as well as extracting more from the existing network. There is a lot of opportunity in the second approach through improved signalling and infrastructure to debottleneck junctions.

In the context of passenger, increasing speeds by a quantum jump for interregional movement is essential. While increasing speeds on the existing right of way can be an option, the benefits derived would not be substantial since it would be under mixed traffic conditions. Dedicated high speed corridors would be the way to go. Apart from being a game changer in terms of connectivity, this would also enable significant technology spin-offs.

While being an environment friendly mode in terms of carbon impact, the Indian Railways are far from environment friendly due to their continuing open discharge toilets. There have been concerns in still evolving the appropriate technology. Further, toilets being used for solid waste disposal has created a different problem, requiring an holistic approach to not only design of toilets but also design of more friendly and accessible solid waste disposal system.

Roads continue to need a lot of attention. Apart from four laning all regional corridors, expressways in high density corridors is the way to go. Rural roads, as developed under PMGSY, have contributed a lot to rural connectivity. However, the connectivity needs to penetrate beyond 'villages' to settlements. Such connectivity needs to be motorcycle friendly since motorcycle ownership is significantly on the rise, with nearly 30 per cent of the rural households owning motorcycles.

The PPP route of road development should continue to be emphasised with appropriate viability gap funding, and land acquisition and environmental clearances, being provided by the government. In terms of financing, it may help if land acquisition costs are with the government.

The trucking sector needs due support by the biggest concern of frontline 'corruption' and 'harassment' by various regulatory authorities being addressed. Other commercial deterrents like driver availability, roadside facilities, dual licensing of power cabs and trailers, and electronic tolling, need immediate attention.

India's record on road safety is amongst the poorest in the world. Better road engineering and furniture, and driver training and licensing, should be emphasised. This should be complemented by roadside support for emergency assistance. While there is sensitivity on these services, implementation could be better. The recent initiative to have tree plantations on the land adjacent to highways need caution. As per many international studies, trees are the biggest killers during accidents. This is specially significant when we are trying to increase the average speeds on the roads.

The average productivity of the over eight million trucks in India is under 300 km per day. There is potential to increase this by not only making each journey faster with fewer unwanted stoppages, but also by more efficient reuse of trucks after

each journey. The latter could happen with internet based platforms offering a market place, very much like the application based taxis.

Pipelines are largely driven by the petroleum companies and are used as captive infrastructure. There are pipelines for coal slurry and iron pellets. On similar captive format, there are conveyer belts, especially in the mining areas. Pipelines are also used for water transportation, but don't get recognised in the transportation domain. There is opportunity for more pipeline usage, which would get driven by the respective users as and when volumes justify the investment.

From an environmental perspective, there is opportunity to increase the share of coastal transport, given India's long coastline. However, issues of hinterland connectivity, cabotage, customs, taxation and duties, and berth availability in the larger ports, have held back the usage of this mode. There have been recent initiatives at easing the policy regime and encouraging coastal transportation. The potential shippers and service providers would need greater consistency in policy, with even subsidy based incentivisation in the early years to build the market.

IWT, while seemingly a big opportunity, needs significant investments before it can be a viable mode of transport. In many ways, India missed the boat of the industrial revolution, since by the time 'modern' transport came to India, rail and road were already the viable means of transport. The largest IWT system in India is actually the river Hooghly, right from the mouth of the river until the port of Kolkata and even a little beyond. This does not get recognised as IWT since this comes under the jurisdiction of the port of Kolkata. The rivers in Goa are also used for IWT. The government is investing in significant stretches of the Ganga, rightly so. This could provide an

opportunity for learning, both in terms of infrastructure requirements and commercial viability. Combinations of coastal and IWT also have scope for coal movement from mines to thermal power plants.

Aviation has been growing reasonably, with the 'open skies' policy for the airlines. Non AAI (including private) involvement in the airports has been stopped after six airports. There are a large number of airports which are not profit making. There could be significant potential in increasing their revenues through non aeronautical sources, with appropriate market orientation. Whether AAI should play the role of actually being involved in development and delivery or just oversight to bring in commercial players is an important question. In any case, an essential air services fund to promote smaller aircrafts would be important.

Aviation needs attention on improved safety at world class levels. Our safety standards and the regulation behind them have come in for international notice as being inadequate. A related issue is whether the air navigation services should be separated from airport management of the AAI, not only to provide focus, but also to ensure that there is no conflict of interest between navigation and airport management which has players other than AAI.

In terms of international traffic, airports provide the face of India. It is important that airports that bring in international passengers are of world class standards, which Delhi, Bangalore, Hyderabad and Mumbai have reached. Some of the AAI airports are also in that league. Traditionally, it has been felt that having a hub airport for international transit passengers would be important for India. With the increasing use of long haul aircraft for point to point movement, the need for such airports gets reduced. However, transit between domestic and international segments would

still be important. None of our major airports are truly integrated in terms of handling such transit passengers in a streamlined manner.

Ninety five per cent of international freight traffic by volume is handled at ports. In terms of bulk movement, there are still opportunities to reach world standards in terms of automation and evacuation. For container transport, while we have developed at a national level with largely private involvement, transshipment ports have to still evolve. India is well placed for developing transshipment ports on both the coasts. Often, legal and regulatory issues have delayed projects. Better policies for commercial and security clearances are required.

In conclusion, most transport movement is multimodal, both for passenger and freight. One of the most important structural problem at the highest level is that we have multiple ministries focussed on their own modes of transportation. This does not lend itself to an integrated multimodal perspective for transportation. Structural reforms to help integrate policy making across the ministries. There are larger issues like the creation of logistics parks, goods and service tax which also have a significant bearing on streamlined transportation.

Transport infrastructure development needs a good regulatory framework. Such regulation must address licensing, environmental impact, safety, security, pricing, service levels and dispute resolution. If in any domain, competition is significant, then pricing and service levels would not need regulation. Not all modes have the appropriate regulatory framework.

Given the above, I would like to conclude that the directions for transport infrastructure development should be driven by speed with sustainability, safety, security, and stresslessness. I would call this the five 'S's of transport infrastructure development. □

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