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Integrated Transport Policy in India– an Elusive Goal

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Abstract: The paper gives an outline of the evolution of Indian transport sector before and after the Indian independence in 1947 and the policies followed by different governments in these modes since 1947. First the paper traces the status of various modes in 1947 and the role British rule played in evolution of these modes. The discussion then traces important policies followed in various modes in the country since 1947 and how they shaped the growth of each mode of transport. The paper brings out the efforts made in implementing an integrated transport policy across the country. It also highlights the failure in implementing an integrated transport policy by giving major areas of failure. Finally, the paper concludes by giving the broad contours of the future policy directions stating that in the Indian context instead of a tightly integrated transport policy it would be better to provide a level playing field across all the modes and enable the modes to develop in the marketplace.

Keywords: India's national transport Policy; Historical development of transport infrastructure in India; Transport planning in India

1. INTRODUCTION

The paper focuses on how various modes of transport in India have evolved since its independence in 1947 and the role played - either positive or negative; by various transport policies and plans introduced after independence. It would also review the efforts made for an integrated national transport policy by the government and the reasons why it has not succeeded are also presented. In the rest of the Section basic data on India is presented to given an understanding of challenges faced in providing transport services in India.

1.1 India at a Glance

India is rightly called a sub-continent not only because of size but because of the diversities in the natural features, economy and demography. Basic data about the country is given in the Table below.

Table 1: Basic data about India

Sl. No	Description and Units	Value	Source(s)
1	Area (Sq. km in millions)	3.28	Government of India (2021b) p. 1
2	Length and breadth (in kms)	North to South East to West	3214 2933 Government of India (2021b) p. 1

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Sl. No	Description and Units	Value	Source(s)
3	Population (2011 and 2021 projections) (in millions)	2011 census 2021 projections	1211 1363 Government of India (2021b) p. 9
4	GDP (In INR [Indian National Rupee] Trillion at current prices) (in Purchasing power parity – PPP; in US \$ Trillion)	2021 (Nominal) 2021 (at 2011-12 Constant prices) 2021 (PPP)	200.7 135.7 10.218 Government of India (n.d. -c) World Bank (n.d.)
5	Share of different modes to the Gross value added in Indian economy (in % for the year 2020-21)	Railways Road transport Water transport Air transport Services incidental to transport Share of total transport	0.76 2.48 0.07 0.06 0.054 3.91 Government of India (n.d. -c)

In addition to the above, diversity in geography leading to variation in industrial, agricultural and mineral production across areas also leads to a increased demand for transport. Thus, transport is deemed as an infrastructure necessary for the development of the country.

The paper is divided into 4 sections. Next section presents evolution of various modes of transport till 1947 when India attained independence. Section discusses growth of various modes and the policies followed from 1947 to till date. Section 4 concludes the paper indicating the way ahead in policy formulation.

2. PAST AS PROLOGUE: EVOLUTION OF INDIAN TRANSPORT TILL 1947

This section reviews evolution of various modes and the policies in India till the end of the British rule as a background to how policies evolved in the later periods.

2.1 Governing Structures and Policies

India sub-continent had well settled population at the least for the last 5000 years and thus travel and trade was established with settlements near and far. Similarly, most of rulers needed good transport systems to defend their kingdoms or occupy new areas, and also for facilitating trade which ensured regular revenue. This needed transport, and copious amounts of references in literature or/and physical evidences about various forms and modes of transport could be noticed from the Harappan period dating back to 3500 BCE (Thapar, 2003).

Advent of the British in the 18th century changed the scenario as the orientation of rulers was to expropriate the surplus from India for the benefit of their country or themselves. Like in other domains (Dutt, 1940), British policies in transport were directed towards exploitation of India as a British colony – exporter of raw materials and consumer of British

industrial goods. Though after 1919, limited autonomy was given to the provinces by Government of India acts 1919 and 1935, and Indians were inducted into the governing structures, it was really of no great use as all the real power remained concentrated with the British. In the rest of this section, we describe how each mode was aligned or developed towards exploitation of India.

2.2 Railways

While British considered development of railway system in pre independent India as an outstanding success of the colonial power, Indian nationalists were highly sceptical about the purpose and methods of railway development. The Indian nationalists argued that railway development got impetus as it matched with colonial interests and the development was not in the genuine interests of India (Dutt, 1940, p. 37; Clairmonte, 1960, pp. 121-126).

First interest of the British was promotion of trade with Britain; procure raw materials from interiors for export to Britain and distribute imported finished products to hinterland - which would be possible with an efficient railway system (Thorner, 1955; Bogart and Chaudhary, 2011). Second interest is security of British dominions, and establishment of railway facilitated a quick means of movement of the British army (Kerr, 2001). Third factor is the safe outlet for British capital, and clamour for private investment in Indian Railways was substantial from British financial interests (Dutt 1955, pp. 140-142). Aided by all the above factors work for planning, construction and operations started earnestly. Aspects related to these can be broadly phased into four phases which evolved as per the priorities of the Indian Government at that time and its interaction with British Government and British investors (Hurd and Kerr, 2012 and Bogart and Chaudhary, 2011).

The first period from 1830-1853, called the promotion period, was critical as it laid foundation for basic contours for railway development in the immediate future and also for the long term. This was the period in which non passenger railways were started for hauling material at work sites – first being laid in Southern India by Sir Arthur Cotton (Bhandari, 2005; Simon 2011) – a personality revered and worshipped in Southern state of Andhra Pradesh for completing an irrigation project using one such railway system (Nahla, 2018).

In this period, it was decided to have 5 feet 6-inch gauge, called the broad gauge as it is wider than the 4 feet 8-and-a-half-inch standard gauge of Britain. Further Dalhousie also laid the broad contours of the network and many technical inputs such as gradient etc. (Dutt, 1940, p 139, Chini, 2006). The period also saw setting up of some and the process for setting up of some the railway companies for undertaking construction of the railway system in India with share capital owned by British citizens. 5 % guaranteed return on capital was finalised and also that the projects would be directed from London but with control of Government of India (Dutt, 1940 p. 141, Clairmonte, 1960, pp. 121-126).

Next is period from 1853-1871 which saw was formation of ten companies under the guarantee system for construction of various lines. Over a period, eight remained and average annual construction rate was 430 and 491 kilometres of route and running kilometres respectively. Next period from 1871-1905 saw interesting patterns emerge. In the initial period, government based on past experience, did not sign new contracts with private parties but started construction on its own. However, this did not last long. By 1880 the decision of not signing private contracts was reversed by the British government owing to financial constraints and due to pressure from British private capital. The change in decision was also accelerated by the recommendation of famine commission which recommended building of another 20,000 miles (Kerr, 2007). However, the new agreements under new guarantee systems were favourable to Government of India with return reduced to 3.5 to 4 percent with other conditions being easier to the government compared to the earlier conditions. In this

period railway construction was also taken up by native states and district boards – though district boards had limited success due to their limited sources.

During this period private guarantee of 8 companies completed 25 years and government took over 5 of them and the other three were taken over after completion of 50 years between and 1900 and 1910 (Bogart and Chaudhary, 2011). Jarring aspect in railway development was the introduction of metre gauge in addition to broad gauge albeit for branch lines. This was decided as cost of construction of broad gauge was proving burdensome to the government (Bell, 1894; Puffert, 2009). Because of reduced cost of construction metre gauge facilitated rapid expansion of the network but introduced break of gauge at a number of points. This proved burdensome in the long run, and process of converting metre gauge sections were started, though at a slow pace initially, culminated in project uni-gauge policy in 1992 (Hurd and Kerr, 2012).

As ownership, construction and operations diversified around 33 entities were traced out by 1900 (Kerr 2001) and they can be classified into 10 types based on ownership and management (Sanyal, 1930; Hurd and Kerr, 2012).

Additional features noticed in this period was the standardisation of processes and procedures – probably a concomitant outcome owing to the diversity of entities and operational features. Some of the steps taken were improved railway conference working as a clearing house – especially the conference in 1879 and from then on it met at regular intervals, updated general rules and standardised various forms, standardised interchange practices, procedures for project evaluation and estimation, and accounting standards (Bell, 1894; Sanyal, 1930; and Hurd and Kerr, 2012). Another major milestone was enactment of a comprehensive Indian Railway act in 1890 replacing earlier acts further defining the legal framework for entire gamut of railway construction and operations (Ministry of Railways, n.d.; Bell, 1894; Sanyal, 1930). This period saw rapid expansion of railway network from 8,166 kms in 1871 to 43,998 kms in 1905 – an increase of 35,232 kms of which 17,097 kms was metre gauge; giving an average annual growth of 1,036 kms compared to 430 km in the past period. Similarly, employees on roll increased from 68,517 to 4,37, 535 employees.

Next period from 1905 to 1947 saw tumultuous changes in the railways in India, and its relations to the companies and the government. Rapid expansion, diversity of gauges, emergence of competing routes and diversified management structures required special focus of the government on co-ordination and control of railways. By now Government of India acquired experience and also competence to build and operate the railway systems. Parallel to these happenings is the rising freedom movement in the sub-continent and their demand for Indianisation and nationalisation of the railway systems, immediate improvement to conditions of passenger travel in third class, and make railway more responsive to Indian problems. (Sanyal, 1930, p. 246; Hurd & Kerr, 2012, p, 20). Immediate offshoot in 1905, based on recommendations of an expert committee, is divesting Public Works Department of railway functions and setting up a Railway Board with a commissioner and two members (Sanyal, 1930, p 246). While the ownership and management of railways lines remained as earlier, all the government functions related to railways were transferred to the Board by amending the Railway act.

Due to the first world war, nationalisation debate remained dormant till the 1920s but emerged clearly as a serious contention along with various other issues. Finally, based on Acworth committee recommendations, major modifications were undertaken. Railway budget was separated from the general budget to give freedom to railways. While accepting the separation of budgets Indian members of legislature insisted on nationalisation and the members demand was accommodated, albeit reluctantly, to get the separation convention accepted (Sanyal, 1930, p. 245).

Nationalisation and takeover of management of railways owned by government proceeded apace with government takeover of East Indian Railway and Great Indian

Peninsular Railway in 1925 and was completed, in stages, by 1944 when all the trunk lines and most branch lines were taken over (Sanyal, 1930 p. 230; Khosla, 1988, p. 175). This also led to various administrative changes including the expansion of the Board and the directorates in the Board. Route length increased from 43,998 kms in 1905 to 65,217 kms in 1945-46 (Hurd and Kerr, 2012, p. 2) indicating an average annual increase of 517 km - though impressive it was half of 1,036 km achieved earlier. Another notable event in this period was initiation of electrification in 1925 in Bombay suburban area with 1500 Volts DC (Central Organization for Railway Electrification, n. d.) and running of suburban services. Electrification was extended to Madras area in 1931 and by independence 388 kms were electrified with 1500 volts DC.

The section highlights the developments of Railways and the British do take pride in their contribution in building Railways. However, whether it is the optimal infrastructure for the country in those days is not examined critically and we conclude the section, without either endorsing or differing with what is stated but highlighting the lack of debate on the alternatives, by quoting Sir Arthur Cotton's sceptical views in 1869 - when 100 million Pound Sterling was supposed to be invested for railway development in a ten-year period while neglecting other sectors: "Eighty millions spent in providing irrigation would at the same time have supplied at least 40,000 miles of main steamboat canals, or one mile to every twenty square miles of country (besides three times as many miles of branches), so that every part of India would have been in direct communication with every other by water, a means of transit that would have conveyed millions of tons at a charge that would admit of its being conveyed from one end of India to the other at Rs. 8 a ton, or 1/10d per lb. Have these 80 millions spent on railways done this? Is not every district in India at this moment exposed to the horrors of famine, excepting the irrigated districts and those immediately adjoining them? A railway cannot convey either the quantities or at the prices that could prevent famine, nor can a few main lines distribute it in those few districts even through which they pass. And numbers of districts have not a mile of railway in them, nor within hundreds of miles of them, and are no more affected by them than if they were in England. And so, with malignant fevers, such as those which have been raging in Bengal for several years, of which we have such dreadful accounts. Had one-fifth of the money been spent in irrigation in Bengal that has been spent on railways, all those fever-stricken districts would have been so supplied with fresh river-water during the dry season, and so drained of their stagnant water during the rains, that not a vestige of those fevers would have remained" (Cotton, 1870 p 6-7).

2.3 Road Transport

2.3.1 Road infrastructure development

India had a flourishing urbanised civilisation dating back to 4th millennium before common era (BCE) in large parts of North and North Western parts of India, and its hall mark characteristics were clearly laid out roads and drainage systems. Further excavations also indicated presence of large variety of material from various parts of the world indicating a well-established trade and, as a corollary, a well-developed transport network – mainly overland but probably some part of it by river and sea (Childe, 1958. p. 185). Scholars like Panini describe different modes of transport in the 1st and 2nd millennium BCE (Agrawala, 1953, pp. 148-156) indicating trade and travel in the country.

The tradition was continued by successive dynasties who ruled various parts of the Indian sub-continent in various periods, and the routes they followed have remained same in most cases. Further, either new routes were added or the existing routes diverted to connect to new settlements. This can be best understood with reference to the current Grand Trunk Road

whose alignment essentially remained same over the last 2500 years and a number of rulers built or improved that road in their tenure (Thapar, 2003).

British India's approach to road development was modulated to the needs of Britain and the pressure groups in Britain. The British period can be broadly divided into two periods: first period is from the start of British rule to early 1920s and the second one from 1920s to close of 2nd world war.

Initial focus of British was on consolidation of their rule and subverting Indian economy to the needs of the British economy and thus focus was on military movement to various parts of the country. Thus, barring roads required for military movement other roads were essentially neglected. The negligence was further accentuated from 1860s as the rulers shifted their focus on development of railway network. British negligence which followed the negligence of declining Mughal powers in the 18th century worsened the road conditions (Sharma, 1951).

Need for development of motor transport and transport deficiencies were noticed during the first world war and British made some efforts in improving the roads in India. Government of India (GoI) appointed road development committee (RDC) in 1927 and the committee emphasised the national interest in developing roads and it stated that it cannot be left to provincial and local governments as they do not have technical and financial capacity. Based on the recommendations road fund was constituted in 1929, Indian road congress (IRC) as a semi-official technical institution was formed in 1934 and Central Road Research Institute (CRRI) was set up in 1950.

Following this was the formation of a 20-year road plan in the conference of Chief Engineers in Nagpur in 1943. The conference also developed a four-fold classification of roads – National highways, state highways, district roads sub divided into major district road and other district roads, and village roads; and the classification remains valid today. Further details of the Nagpur plan are given in the next section as it actually got implemented after independence.

2.3.2 Motor vehicles

Like in road infrastructure development British policies towards development of road carriers was influenced by the colonial administration's need for avoiding competition with the railways. Initially acts regarding regulation of motor vehicles were made by provincial governments starting with Bengal province in 1903. These acts were consolidated into a central act by passing of Motor vehicle act, 1914. The act mandated registration of vehicles with provincial governments (Government of India, n. d. -b, p. 76).

Motor Vehicle Act 1939 placed many restrictions on plying of motor vehicles, both passenger and goods, based on the premise that regulation of road-rail competition would help the economy. It laid down rules placing restrictions on movement of motor carriers (Government of India, n. d. -c) for movement of goods and passengers. The controls exercised through regulated issue of permits remained in force for a very long time and thus on the eve of independence motor carrier industry was highly regulated and with limited avenues for growth (Gadgil, 1946, pp. 488-489). This was continued after independence and was removed in a phased manner.

2.4 Air Transport

Air flights in India preceded those in England by 4 months when the world's first air mail flight flew from Allahabad to Naini, a distance of 10 km, in 1911 (Tata, 1994, p. 455). In the same year air transportation act was passed regulating the air mail. In spite of the head start and after formation of Air Transport Board in 1920, the air transport did not take off till 1929.

Next important milestone was landing of flight of Imperial Air Services in Karachi in 1929. Though Indian State Air Services (ISAS) was formed in 1929 it was not operational. The flights connecting to Delhi were sporadic till 1931 when Delhi Flying Club was assigned the job and it provided the service for two years (Bhir & Pradhan, 1955, p. 481; Chakravarty, 2011). Later Government formed Indian Trans-Continental Airways (ITCA) to operate the Karachi-Singapore sector of UK-Australia route – 51 % equity was held by Imperial Airlines and rest by Indian Government and Indian National Airways (a wholly Government entity); and services were operated by Imperial Airlines (Bhir & Pradhan, 1955, pp. 482)

However, landmark event was the starting of scheduled flight services by Tata Sons Ltd. with its Chairman J. R. D. Tata flying the first service from Karachi to Bombay in 1932 starting the era of scheduled air services in India. From 1932 the air services improved with new cities being added and frequency being increased. Initial cargo was mainly mail but later carried passengers also (Tata, 1994, pp. 456-8). Between 1933 and 1934 other companies such as Madras Air Taxi Services, Air Services of India, and Indian National Airways commenced operations (Tata, 1994, p. 460; Chakravarty, 2011).

While the traffic steadily improved over the years, the Second world war ended all that as civilian operator services were requisitioned for purposes under well provided for contractual terms (Bhir & Pradhan, 1955, pp. 482). Close to the end of war policy issues drew attention and Thymms plan was formulated in 1943 envisaging how the sector should grow. Air Transport Licencing Board (ATLB) was set up in 1946 to grant licences to airline operators. Easy availability of aircrafts, increased number of operators, and partition changed the complete aviation scenario this will be dealt in the post-independence phase.

Another important component of air transport are the ground facilities. They were rudimentary but government did take interest and the facilities – both landing and navigation; improved over were a period of time. By 1938 there were 148 airports in India of which 47 were open to public and the rest either needed prior permission or were of restricted usage (Dhekney, 1953, p. 205). On the rudimentary nature of landing facilities Tata says: “Taking Tata’s Karachi-Madras 1,300-mile route as an example, with the exception of Karachi, which had radio and night handling facilities of a sort, rest of the route was devoid of any aid whatever and Bombay, the principal base of the airline did not even have an all-weather aerodrome. The Bombay airport was a dried mud flat near the sea serviceable only during eight months of the year. ...during monsoon ... airline shifted to a small landing airstrip at Poona. As there was no lighting facilities ... on the route no night flying was possible and with a night stop at Bellary ... average speed was 40 miles per hour.” (Tata, 1994, p. 459).

2.5 Water Based Transport

2.5.1 Shipping (coastal and overseas)

History of Indian shipping and its importance has been well chronicled in various sources (Mookerji, 1912; Sahai, 1996; Jog, 1969). Suffice here to say that shipping was a prominent means of trade and travel historically dating back to 3000 BC in the Indus valley period. Though no material is traceable to Rig Vedic period, literary references abound referring to ships, voyages and sea trade (Mookerji, 1912 pp. 53-55). The tradition was continued in later periods; like in Board of Admiralty of Chandra Gupta, Andhra and Kushan trade with Rome; colonisation of Island of Java by Kalingas, conflict and conquest of Cholas with rulers of Malay and Java and many others are standing testimony to the sea faring abilities of India at the time of arrival of Europeans to India through the sea route (Mookerji, 1912; Sahai, 1996).

As observed by Panikkar (1945, p. 39) when the Europeans came “The navigational activities of the European peoples were confined to inland seas like the Mediterranean, the North Sea and the Baltic and to the coasts of Europe. Only the Hindus, the Chinese and the

Arabs had developed a tradition of oceanic navigation and of these, as we noticed before, the Hindus had the largest share till the end of the thirteenth century”.

Portuguese, with the authority of Papal bulls (Paulin, 1917, pp. 20-26) assigning the Eastern territories to Portugal, tried to occupy and also to enforce their monopoly on the trade in Indian ocean leading to a series of conflicts with local powers, traders, and with other European powers (Panikkar, 1945) finally establishing the English supremacy on Indian ocean with regards to trade with India. Simultaneously English became a land power.

Using this position, the British systematically killed Indian shipping to an extent that Mahatma Gandhi observed that “Indian shipping had to perish so that British shipping might flourish” (Jog, 1969, p. 2). The tools used were direct prohibition by imposing ban on usage of Indian ships (Jog, 1969, p. 10), tariff discrimination (Nambiar, 1975, p. 98), appointment of manpower with provisos relating to number of British hands and compulsion that British mariners should be the masters (Nambiar, 1975, p 99) etc.

As the British consolidated their hold British monopolies emerged in shipping and they could continue the stranglehold using unfair trade practices like rate wars, entering into agreement with other non-Indian competitors, and outright defamation of Indian operators using falsehood (Mehta, 1940, pp. 34-35). It is said “About 102 Indian shipping Companies with a total capital of INR 46 crores were registered between 1860 and 1925. The majority of these companies succumbed to English competition” (Nambiar 1975, p. 101). Some of the prominent companies that were set up were Tata Line by Tatas in 1894, Swadeshi Shipping Company Ltd. by Shri V. O. Chidambaram Pillay in 1905 – a prominent freedom fighter and disciple of Lokmanya Bal Gangadhar Tilak; and Bengal Steamship Company set up in 1905 by Nur-ul-Haq Chowdari in Burma.

By 1947, Indian share in Coastal shipping was around 40 % and in overseas shipping negligible (Nayar, 1995, p. 941).

2.5.2 Ports and harbours

As ancient civilisations located in India traded with neighbouring areas it is but natural that there is an extensive system of ports on the coastline. Archaeological evidence dates the ports to being as early as 2500 BCE and since rulers with coastal access developed ports as per their requirements (Sahai, 1986, Chapter 1). Sahai also refers to extensive references in Indian and foreign accounts of the existence of the ports and their importance to the economy of the regions.

Initially European powers used the existing ports for their trade and set up the factories but as times progressed, they developed new port cities Goa, Chennai and Kolkata; and traded through them. They also imposed or attempted to impose monopoly rights of trade levying the traders and ships not belonging to their community.

As British became the ruling power the port cities also became centres of power – Calcutta, Bombay and Madras for Bengal, Bombay and Madras presidencies respectively. Later Karachi, Cochin, Chittagong and Visakhapatnam were added as major ports (Government of India, 1946, p. 14). With partition of country and Karachi and Chittagong were handed over to Pakistan, the five Indian major ports handled in 1952-53, over 21 million tonnes out of the 25 to 26 million tonnes handled at all the ports, with Calcutta and Bombay accounting for around 58 per cent (Government of India, 1954, p. 9) vindicating the importance of major ports at the time of independence.

2.5.3 Inland water transport

Evolution of Indian cities and kingdoms along the rivers and coasts and the importance of inland water transport (IWT) for movement of men and materials is well chronicled (Thapar,

2003 p. 49; Government of India, 1980, p. 283) and thus when British arrived IWT played a crucial role in setting up their rule and for furthering their administration through transportation of men and material. They also initially encouraged it as vindicated by their support for river navigation – like setting up of mechanised steamer services between Calcutta to Agra in the West and to Assam in the East (Government of India, 1980, p. 49) or start of phased construction of Buckingham canal in 1806 on East coast for transport of men and material (Venkateshwarlu, 2017).

However, the sector began decline with the spread of railways as the British imperial and financial interests were intertwined with railways. Report of Inland Water Transport Committee (Ministry of Transport and Communication, 1959, p. 15) stated that “With the active encouragement given to the Railway system and in the absence of adequate measures to maintain the waterways, gradual decline of inland water transport became inevitable”. Sir Cotton’s exhortation for use of canal transport as a better alternative to rail transport in the country (Cotton, 1870, pp. 6-7), as highlighted earlier, was not heeded. While one is not sure which is better or a hybrid alternative was better the line of argument was never pursued either by the company or by the Government of India. Though inland water transport has been neglected but it survived in few areas despite indifference, if not hostility. This is best exemplified by transport of tea from Assam – in 1900, 70 percent of tea from Assam was exported by river transport (Medhi, 2004, p. 525).

2.6 Urban Transport

Urban transport was limited to traditional modes of transport till 1853 (Mahaluxmivala, 1936, p. xi) when railways was introduced in India. Further, introduction of horse drawn tramways in 1873 in Calcutta (West Bengal Transport Corporation Limited, n. d.) and in Bombay in 1874 (Mahaluxmivala, 1936, p. xvii) were first organised attempts to formalise urban transport. This was followed by introduction of Bus services in 1922 in Calcutta (West Bengal Transport Corporation Limited, n. d.) and in Bombay in 1926 (Mahaluxmivala, 1936) in addition to the already existing motor cab services. As referred earlier from 1925 rail lines in suburban areas were electrified and rail services run to cater to urban transport. However, other than the above listed efforts, mostly at the local level, no organised effort was made to cater to evolve an urban transport during British rule.

2.7 Efforts at an Integrated Transport Policy

British never formally made an effort to evolve an integrated transport policy as their approach was piecemeal but, as in like all other policy matters, the target was to make transport subservient to colonial needs and British capital. Further in their tenure they never had competing modes except after 1930s when motor vehicles started competing with railways. For example, canal irrigation suited the British initially and they encouraged it and later it was given up in favour of railways. As motor transport started growing and was competing with railways all efforts were made to regulate it and make it subservient to railways (Gadgil, 1949, p. 52).

In 1933 Mitchell-Kirkness committee was mandated to study the extent of road-rail competition in various British Indian provinces and measures to regulate them. The Wedgewood Committee was appointed in 1937 also looked into the rail road competition. (Gadgil, 1946’ pp. 488-489; Bhir & Pradhan, 1955, pp. 264-265; Badri Rao, 1941, p. vii). Rail-road conference was set up in 1933 and Central Transport Advisory conference was set up in 1935.

Recommendations from the committees and related experience in working of the various conferences and the working of motor transport act 1919, Motor Vehicle Act 1939

incorporated various measures to regulate motor transport and keep it subservient to rail transport.

Other than the above regulations no effort was made to develop an integrated transport policy during the British rule.

3. FROM INDEPENDENCE (1947) TILL DATE

This section covers the various policy measures taken after independence to till date. Next sub section deals with legal and political under which these policies evolved. It is followed by a section devoted each mode of transport. Penultimate section gives how each of the modes grew after 1947 and then the section finally closes with a critical evaluation of integrated transport policy reasons for its non-implementation or failure.

3.1 Governing Structures and Policies

Indian constitution defines three levels of governance – Central (also federal), State (provisional) and local government. As per the constitution India is a “union of states” with powers between central and state governments distributed into three lists: namely – central, state and concurrent. Powers to make laws on central and state lists lie exclusively with central and State governments respectively. Arrangement with reference to concurrent list is more complex – while centre and states can make laws on the subject if there is a conflict between central and state laws then central law will prevail.

Each mode of transport is either under one of the lists or distributed between different lists and how each mode is controlled by different governments is given in Table 2. In addition, central government by its pre-eminent position and also control of finances has capability to direct and control development of different modes of transport which are not under central list.

Table 2: Control of different modes of transport by different governments

Mode	Constitutional provision	Controlling ministry in Central Government	Remarks
Railways	Central government	Ministry of Railways	Remains with central government except urban metro rail transport systems. State governments have proposed to share cost of few railway projects which they find are important for them.
Road	Central list: Highways of national importance called National Highways (NHs) State list: Rest of the roads	Ministry of Road Transport and Highways	NHs list has increased over the years and will be further discussed. Roads and local governments played active role in development of roads. Central funds for various road projects.
Road	State list	Ministry of	Centre has an enabling act to

Mode	Constitutional provision	Controlling ministry in Central Government	Remarks
vehicles		Road Transport and Highways	ensure uniformity. Act is administered by the states.
Shipping	Central list except on inland waterways not declared nationally important Concurrent list for inland waterways which are not declared nationally important.	Ministry of Shipping	
Ports and related infrastructure	Central list: Major ports Concurrent list: Rest of the ports not declared as major ports.	Ministry of Shipping	Non major ports, originally called minor ports have become very important in the last 20 years
Airlines and aircrafts	Central list	Ministry of Civil Aviation	
Airports and related infrastructure	Central list	Ministry of Civil Aviation	States play an active role in developing airports especially under Public-Private partnership.
Urban transport	State list	Ministry of Urban Development	National Urban Transport Policy was formulated by the Central Government.
Logistics	Not in any list (Hence with central government)	Ministry of Commerce	Logistics policy was formulated by Central Government in 2022

Source: Government of India (2022a) pp. 310-324

Thus, from the Table we see that policy for each mode of transport is diffused widely between central and state governments. In some areas, such as urban transport and rural roads, local governments play a crucial role and thus bring in greater variation across the country.

3.1.1 Overview of trends in political and economic thought

In addition to the governing structures what dictated was the overall political and economic ideology of the ruling party, and one can peruse three distinct phases since 1947. Post-independence, the focus was on building a socialistic pattern of society (Indian National Congress, n. d.) and the rhetoric of public sector occupying commanding heights of the economy dominated. While the policy remained for a long period, it morphed into licence-quota-permit raj where innovation was stifled with layers of controls and vested interests profiting from the controls (Rajagopalachari quoted in Erdman, 1967, p. 131). However, by

mid-eighties, the licence-permit raj policies were relaxed, albeit slowly in the 80s but with greater vigour after 1991 and more role was assigned to the private sector (Burange & Shruti, 2011).

As the time progressed, and after a lot of trial-and-error, governments, both at the centre and state level, and as the private sector gained confidence in infrastructure development, maintenance and operation, Public-Private partnership (PPP) became the new mantra. As PPP is more of an enabling environment with non-governmental entities bringing in more funds, state governments, which from the beginning were starved of funds, took active interest in developing transport infrastructure especially in the areas they were delegated.

3.1.2 National level policy committees

Since 1947 eight reports were made in different years for development of an integrated transport policy. A brief introduction of the committees is given to understand the context in which these reports were made.

First one was formed in 1938, before independence but was as part of the national Indian National Congress's attempts for planned development of the country, thus giving blue print of dominant political party and also the future Prime Minister of the country. While the main committee had Nehru as the head of the organisation, committee on transport services was headed by Prof Gadgil and the final report was submitted in 1948 (Gadgil, 1949). Keeping the spirit of the times and also leftward lean of the Nehru, report assigned important role for the Government in the transport sector. In the 50's there were two committees – Report of the Study Group, (Transport Planning) in 1955 (Government of India, 1955) and The Committee on Transport Policy and Coordination appointed in 1959. Later committee had extended life and submitted two reports – preliminary in 1961 (Government of India, 1961) and the final in 1966 (Government of India, 1966).

Next committee, called National Transport Planning Committee (NTPC), supported by United Nations Commission on Trade and Development (UNCTAD), submitted its report in 1980 (Government of India, 1980). Unlike other committees which used limited sample-based approach to costing, for the first time NTPC built national transport models using resource costs and network models based on a more extensive survey. Next committee, formed in 1986, called Steering Committee on Perspective Planning for Transport Development (SCPPTD), followed methodology used by NTPC and submitted its report in 1988 (Government of India, 1988).

While all the previous reports were prepared when central government's idea of public sector having commanding heights of the economy was the dominant theme, next two reports – one in 2001 (Pant, 2001) and the other in 2013 (National Transport Development Policy Committee, 2014a, 2014b, & 2014c); were made in the liberalisation era and they reflect the spirit of the times giving greater role for the private sector in a more deregulated environment.

In addition to the eight reports there were 12 five-year plans – from 1951 to 2015 - year in which Planning Commission was replaced with National Institute for Transformation of India (NITI) Aayog and the concept of 5-year plans was abandoned. As Planning Commission and the planning process was for optimal resource allocation, each plan reviewed performance of each mode and set targets for the future. Sometimes the plan also reviewed transport as a sector together giving a comparison between different modes.

Further, each ministry undertook many studies for the modes of transport under their charge - both as a part of the planning process and also independently. To add to this are the efforts of state governments and thus we get a complex maze of policies with variations

across different modes and also within sub-sectors of each mode, across geographies and time.

Though not issued as a part of the national transport policy, a few recent initiatives were formulated to integrate various infrastructure activities - especially using the digital technology. PM GatiShakti National Master Plan (Kant, n. d.) – an effort to integrate all infrastructure developments across all the ministries; and the national logistics policy; which plans to reduce logistics cost by integrating all modes of transport and all logistics services on to one common platform; are two such prominent efforts (Ministry of Commerce and Industry, 2022). However, these policies are not discussed further as they are aspirational statements without any detail and that as they are still being rolled out no details are available to the authors to analyse the policies.

In the following sub-sections policies and growth of each mode is presented. Then it is followed by a section on efforts made in developing an integrated transport policy in India is discussed.

3.2 Railways

As narrated above Railways were well established before independence and government kept very high hopes on the system to meet the transport needs of the country and this was reiterated many times later in different plan documents. Though copious literature is available on working of railways focus here is laid on public policy related issues. Performance of railways and related initiatives can be found in various works such as Khosla (1988). The section will focus on few crucial policies and the political expediency involved in these decisions.

Government of India not only took over all the rail systems but also stated, vide industrial policy resolution, 1948, that transport by railway for public is the monopoly of the central government (Department for Promotion of Industry and Internal Trade, n.d). This policy continues to be operational for all intercity travel. Industrial rail systems transporting material was permitted for short leads and state governments were permitted to run urban metro rail systems from early 2000s. The metro rail policy announced by the Government of India reiterates it (Ministry of Housing and Urban Affairs, 2017).

Though the overall responsibility to parliament and people is with the cabinet headed by the prime minister, minister for railways is answerable for the day-to-day functioning. In the era of coalition politics, especially from 1996 to 2012, barring a three-month gap, Railway Ministry was headed by a strong regional satrap supporting the main ruling party (Ministry of Railway, n.d.) and they treated IR as an electoral milch cow (Tewari 2009, n.d.). As will be enunciated later political control played a key role in deciding various policies of Railway Ministry such as, fixing the administrative units, fixing of tariffs, new projects, and introduction of new trains (Hurd & Kerr, 2012).

Lot of committees have gone into working of railways and suggested measures to improve them. Further, railways themselves have issued documents assessing performance and measures to improve it. Public policy is analysed with reference to ownership and management, tariff policies, network expansion and gauge policy, public funding of railways, and manufacturing of railway stock.

3.2.1 Ownership and management

Ownership and management has been a vexatious issue since the beginning of railways and needed immediate resolution after independence. By Independence, 42 railway systems were operational under 37 different companies (Chand, n.d.). Bulk of the network was owned and operated by Government of India but there were various other configurations such as those

run by private entities and, lines assisted by district boards and those belonging to princely states. In many cases owners handed over operations and maintenance to some other entities (Khosla, 1988).

By 1952, organisation structure of IR was also stabilised to a three-layer model - consisting of Railway Board, the zones and the divisions. Below the divisions field formations functioned under the directions of the divisions. The three layers were staffed with people from different departments which were organised vertically. Thus, a matrix structure evolved with administrative control and reporting within the same level and the technical reporting at the higher level.

Two more zones were added for operational reasons - South Eastern formed from Eastern in 1955, and North East Frontier from North Eastern Railway in 1958. In 1966 South Central Railway was formed as Central was too unwieldy (Khosla, 1988) – however authors suspect that underlying the formation of the new zone were the regional aspirations of the newly created state of Andhra Pradesh in addition to the operational reasons. The authors' suspicion is confirmed when rising political and regional aspirations led to addition of 7 new zones overnight though various expert committees opposed the formation of the new zones (Naveen, 2002), and most of the large states had one zone in their state. Regional aspirations in new zone formation grew to such an extent that one of the main demand and aspiration for the newly formed state of Andhra Pradesh was the formation of a new railway zone headquartered in its territory (Dastidar, 2019). Demand for creation of new zonal and divisional administrative units is so high that Ministry of Railway received demands from around 174 political personalities for creation of railway zone or a division in the three-year period from 2014-2017 (Rail News, 2018).

Simultaneous to this, various committees suggested changes in railway administrative set up (Ministry of Railways, 2015 and references there in). Rakesh Mohan Committee (quoted in Ministry of Railways, 2015, p. 218) suggested that IR should focus only on its core business of logistics and passenger transport and hive of unrelated activities. Committee suggested corporatisation of the operational functions, with a regulatory body and the policy function to be controlled by Government (quoted in Ministry of Railways, 2015, p. 222). Recommendations, however, were not accepted by IR.

Next important committee was that of Bibek Debroy Committee (Ministry of Railways, 2015) and they suggested sweeping changes. It also suggested for revamping of IR on business lines. separation of policy function from operational entity, and while policy function is retained by the government, operational entity is to be made into a corporation, and setting up of a Rail Regulatory Authority of India (RRAI) (Ministry of Railways, 2015, pp. 14, 169-183). Few years down the line, and after RRAI starts functioning, the committee recommended segregating operations from infrastructure, like the European pattern, and divesting of railways from its non-core activities locomotive manufacturing into a separate entity (Ministry of Railways, 2015, pp. 16, 184-193).

One significant change under implementation is restructuring of management cadre – all eight departmental cadres are being replaced by one management cadre to be called Indian Railway Management Service (IRMS) (Dash, 2020).

In spite of many committees and their recommendations (see Ministry of Railways, 2015, pp. 194-231) ownership and management has remained the same as the one started in 1952 barring few minor changes as given above.

3.2.2 Railway infrastructure

3.2.2.1 Development of fixed infrastructure

As a consequence of partition railway network was broken and needed immediate construction of the missing links. Missing link in Assam was built in 1950 and those in Punjab and Gujarat in 1952. Network expansion since then has a large proportion of politically mandated lines compared to the lines required for operations and traffic growth. For example, as per a white paper submitted to the parliament in 2009 out of 286 projects sanctioned with an estimated cost of INR 794 billion only 123 projects with an estimated cost of INR 215 billion are 'priority projects based on the criteria of growth in traffic/operational considerations' (Ministry of Railways, 2009). Project uniguage, taken up with gusto in 90s, also lost its steam as the high-speed rail and urban metro rail systems barring few sections in Delhi are all being built on standard gauge.

Traditionally railway infrastructure was built by the Indian Railways (IR) exclusively using either its funds or funds from central government. However, as these efforts were inadequate, especially as they were not commensurate with demands of various state governments or private entities, it allowed floating of special purpose vehicles to build the lines while the network is completely managed by IR (Ministry of Railways, 2012).

3.2.2.2 Rolling stock manufacture and procurement

Constraints imposed by the British Government of not developing indigenous locomotive manufacturing capacity were acutely felt after independence and efforts were channelized for producing locomotives in India immediately after 1947. The Chittaranjan Locomotive Works, manufacturing plant set up in 1947, started producing locomotives in 1950 and the government also took stake in Tata engineering and locomotive Company - which produced locomotives for meter gauge (Lehman & Hughes, 1975; Government of India, 1951 p. 202). As a policy IR was producing most of the locomotives and coaches while wagons were procured from other companies. The policy continued for very long but this policy was revised. Two locomotive units – one each for diesel and electric; were started as joint venture companies with foreign entities bringing the technology and owning 76 % of the equity (Press Information Bureau, 2014).

Similarly, a number of policy initiatives were undertaken taken to involve private capital in procurement of wagons, marketing freight services (Ministry of Railways, 2015 p. 174), and running private passenger trains (Sharma, 2020). There is limited amount of success in freight domain and around RsR 150 to 200 billion is invested through these policies (Authors' assessment). However, attempts to bring in private parties to run passenger services is a non-starter at this point of time (Bhaskar, 2021).

3.2.3 Tariff policy

Tariff is one instrument available to encourage or discourage particular streams of traffic and as seen above tariff setting was a principal instrument used by British to further the colonial rule. Immediately after independence corrections were set in place to remove these distortions. The rates were rationalised based on the recommendations of post-war Rating Committee bringing the number of rates down; moreover, the new uniform rates were applicable over the entire country and the telescopic rates were applicable based on the total distance travelled. Third class passenger fares were also reduced.

As years passed conflicting views on tariff revision could be discerned. While railway freight structure enquiry committee (1957) preferred progressive increase of freight rates by 12.9% another committee on export promotion recommended for a reduction in railway freight rates in order to promote exports. With the political control there is a populist pressure to keep the passenger fares static forcing a disproportionate increase in the freight rates. Thus cross subsidy has become the prominent feature of the railway tariff policy. Over the first two

five-year plans (1951-60), while the passenger fares did not increase freight rates rose by an average of 16% (revised twice, first in 1955 and again in 1958) (Healy, 1964).

Another major reason was the lopsided freight rate structure charged by the railways where the rates were favourable for the low value bulk commodity goods, which was compensated by charging higher rates for the high-value goods. This discriminatory price structure had its history in the colonial Railways where discriminatory pricing was followed as per the needs of the British either to kill competition or promote British interests (The Economic Weekly, 1962). The discriminatory pricing was highlighted by the Rail Tariff Enquiry Committee (RTEC) in 1977 (Paranjape. 1986, p. 389)

While fixation with getting right tariff mix is a persistent theme with Indian Railways, aided by the computerised ticketing system, it experimented with different pricing strategies under various nomenclatures such as Tatkal, flexi-pricing, dynamic pricing and many others similar schemes. The schemes essentially entail charging of premium on normal fares (Train fares, 2022).

3.3 Road Transport

3.3.1 Road infrastructure development

As highlighted in the section on governing structures road development was undertaken by central, state and local self-governments. Thus, road development happened in a more decentralised manner and thus was more extensive compared to other modes (Government of India, 2022). Barring few exceptions such as project roads involving huge industries, mines and townships rest of the roads were developed by public funds from government entities. The roles of each government are described below.

3.3.1.1 Central government

Importance of the central government was already highlighted by the Jayakar Committee in 1928 (Bhir& Pradhan, 1955, pp. 394) and it is only reinforced over time. First concerted effort was made in 1943 in the form Nagpur plan by unveiling a twenty-year action plan. Nagpur plan also classified roads into the following:

- 1) National Highways (NH)
- 2) State Highways (SH)
- 3) Major District Highways (MDR) and other District Roads (ODR)
- 4) Village Roads (VR)

Central government is responsible for development of NHs and the state and local governments for the other roads. Nagpur plan was followed by Bombay plan from 1961-81 and the Lucknow plan from 1981-2001. Basic approach of the plans is summarised in Table 3.

Table 3: Road plans in different road expansion programmes

Plan and the period	Approach
Nagpur Plan (1943-63) but closed in 1961 as set objectives were achieved	<ol style="list-style-type: none"> 1. First coordinated approach for road development 2. Fourfold classification of roads was initiated (see below for the details) 3. Plan to build 200,000 kilometres of road in star and grid pattern 4. Targeted road density of 16 kilometers per 100

Plan and the period	Approach
	square kilometers
Bombay Plan (1961-81)	<ol style="list-style-type: none"> 1. Targeted road density of 32 kilometers per 100 square kilometers 2. Targeted to complete 1 million kms of road length 3. Targeted construction of 1600 km of expressways 4. Rural roads were given specific attention
Lucknow Plan (1981-2001)	<ol style="list-style-type: none"> 1. Targeted road density of 82 kilometers per 100 square kilometers 2. Targeted to complete 1.2 million kms of road length with targeted lengths of NHs to be completed in 7th, 8th and 9th plans. 3. No NH should be more than 50 km from any place in the country 4. Targeted construction of 1600 km of expressways

Source: Bhir & Pradhan, 1955, pp. 297; Government of India, 1980, pp. 61-64, Sultania, Somani, Kumar, & Doshi, 2013.

From the year 2000, with onset of liberalisation in 1991, approach to road development changed. Earlier, governments were the funding agencies, and now toll revenues became major sources of funds while governments planned and monitored the works. Various formats of PPP models were tried and private sector had a larger role in project execution. After the Lucknow plan, National Highway development programmes (NHDP), which were divided into seven phases, were taken up between 2000 to 2007 (National Highway Authority of India, 2022a) totalling 45,000 kms and costing Rs 1.7 trillion (Planning Commission, n.d. p. 4). Later, Bharatmala Pariyojana (National Highway Authority of India, 2022b) was launched in 2017 targeting 34,800 kms at an estimated cost of Rs. 5.35 trillion. The programme also subsumed 10,000 kms length of unfinished roads from NHDP.

Importance of rural connectivity was felt over different plan periods (Government of India, 1980, p. 169) and was part of many programmes of the Government. It got fillip with launch of Pradhan Mantri Gram Sadak Yojana (PMGSY - translated as Prime Minister's Village Road Scheme) in 2000 with target to improve connectivity of the villages to the national transport network (Ministry of Rural Development, 2004).

States played an important role in completing roads especially the state highways and district roads. Local governments, with assistance from state and centre, developed urban roads.

3.3.2 Policies on motor vehicles

In the initial years, especially in the first two plans, the focus was on reconstruction of railways with motor transport expected to play a secondary role. Further, the spirit of MV act, 1939, in regulation of road transport persisted for many years after independence. This is best illustrated by transport code, formulated in 1945 by the Transport Advisory Council and shared as a draft by Central Government with various states. The draft Code suggested the following distance limits in regard to licensing of goods vehicles between points connected by- rail:

- 1) Upto 50 miles—free licensing,

- 2) 50 to 100 miles—stronger justification to be established.
- 3) 100 to 200 miles—strong economic justification to be shown
- 4) Over 200 miles, permits to be issued only in exceptional cases. (Government of India, 1959)

Though the code remained in draft form it was implemented by many provincial governments as it had the backing of the transport advisory council. In spite of a number of requests to amend or defer its implementation, such as the recommendations by the Motor Vehicles Taxation Enquiry committee (Government of India, 1950), the proposals were never deferred. However, ad hoc modifications were made by the centre based on suggestions from the provincial governments (Government of India, 1959).

However, cargo movement by road could not be suppressed for very long and government was forced to relax the restrictions imposed in the name of rail-road co-ordination. Major fillip to this change emanated from recommendations of Road Transport Reorganisation Committee (Government of India, 1959) and Committee on Transport Policy and Coordination (Government of India, 1961 and 1966). Restriction on issue of national permits was completely done away with in 1986 through an ordinance (Government of India, 1988b, p. 159). The procedures were also simplified especially issue of national permits – with centre issuing the permits instead of each state government independently. Liberalised licensing regime, in spite of a number of other fetters, facilitated growth of road transport (Government of India 1988, p. 119).

Thus, while cargo transport by road started as a highly regulated industry in 1940s and 50s, it is currently unfettered with references to the routes of movement and pricing. Grant of national permits, issued online, enabled a hassle-free system and reduced the difficulties faced by the operators. Road transport has become the principal mode of cargo transport overtaking railways in total cargo carried in 70s

In terms of public ownership of vehicles, freight and passenger carriers took different trajectories. Freight transport remained in the private sector and largely unregulated with respect to pricing - though Motor Vehicle Act 1939 Sec (43(1)(ii) provides for fixing maximum or minimum fares or freights for stage carriages and public carriers (Government of India, n. d. -a) it was never implemented seriously in the freight domain.

Passenger motor vehicles can be segregated into personal transport vehicles like two wheelers and cars and vehicles for public usage like, autos, buses and vans. From the beginning till about 2006 – the year National Urban Transport Policy (NUTP) was introduced, governments at all levels were indifferent to the development of personal transport vehicles. Various policy committees and announcements till 2006 had no formulations either positively encouraging personal vehicles nor formulations discouraging them. It was only in 2006 that NUTP explored curtailing movement by personalised vehicles in urban areas but no enforceable action was envisaged till date (Ministry of Urban Development, 2014).

Role of government was very high from the beginning in regulating non personalised motor vehicles engaged in carrying passengers. These services are categorised into stage carriages and contract carriages. For stage carriages MV Act 1939 provided for publication of time tables and fares and these were enforced by the provincial governments.

Further, in 1946, Interim Government in its road transport policy stated that in most, if not all, provinces passenger transport would be best served by formation of tripartite companies consisting of the Railways, provincial governments and the Central Government (Gadgil. 1949). Public ownership was given further fillip with the passing of The Road Transport Corporations Act, 1950. As on 1959 the status of passenger transport was as follows:

Out of 18 States and centrally administered areas, administrations have partially nationalised passenger services within their territories, some fairly extensively as in Bombay and Uttar Pradesh and others to a smaller extent. Only 3 of these administrations have established corporations under the Road Transport Corporations Act, namely, Andhra Pradesh, Bombay and the former Pepsu, while some States are contemplating doing so. In the majority of the States the nationalised services are run departmentally as State Undertakings. Quantitatively, nationalised services operate only a small proportion of the total volume of road transport. (Government of India, 1959).

Thus, while for hire freight carriers were nearly completely owned and operated by private entities (public ownership was 0.3 % in 1970), owing to the spirit of the times and passing of Road Transport Corporations Act of 1950, public ownership of buses was substantial. Hovering around 30 per cent in late 1950s (Ministry of Shipping & Transport, 1974), it peaked to around 45 % in mid-seventies. Since then, there is a steady decline and public ownership reduced to 7 % by 2019 (Government of India, 2021a, p. 52). These buses were and are run by public entities such as corporations or government departments.

3.4 Aviation

Policies in aviation for carriers and for infrastructure is entirely different and each of them is discussed separately in the next two sub-sections.

3.4.1 Policies on development of airline carriers

Policies on transport sector can be outlined into three time periods – Independence to 1953, 1953 to 1991 and 1991 till date; and each is discussed below.

3.4.1.1 From independence to 1953

First period is a period of ferment. Independence, increased availability of aircrafts made redundant after second world war, liberalised licensing regime, and post war investment flux created ripe conditions for rapid expansion of the sector (Tata, 1994). Tymms plan, formulated in 1943 as a guideline for air transport after the war, saw scope for 3 or a maximum of 4 private airlines to operate on all routes. However, licences were liberally given by the interim government and also newly formed Air Transport Licence Board. As per Air Transport Enquiry Committee (Air Transport Enquiry Committee, 1950; Lala, 1993 p. 130) report while 4 companies had licences by 1st July 1946, by June 30th, 1949, 13 companies had licences - 11 are domestic scheduled operators, one was scheduled freighter and one international carrier – namely Air India International.

International operations were started with Air India International (AII) and this was an example of joint venture (or known as public private partnership in modern terminology) with 49 % equity from Government of India (GoI), 10 % equity from the Tatas through Air India and the balance was subscribed by public. AII started operations in 1948 and was stated to be profitable till 1952. Towards the east two licensees were given to operate to the countries in the East and one operator started services to Bangkok, Singapore and Jakarta in 1949, 1950 and 1952 respectively.

Air Transport Enquiry Committee (ATEC), reiterated the plan suggested by Tymms in 1943. Report recommended against state takeover of operations and preferred the current arrangement with reduced number of operators (Lala, 1993, p. 130).

3.4.1.2 From 1953 to 1991 (nationalisation to start of deregulation)

In spite of the unanimous recommendations of ATEC against nationalisation of air transport industry, Air Corporation act was passed in 1953 and two corporations namely Air India International (All) for international services and Indian Airlines Corporation (IAC) for domestic services were set up. In this period growth of the airlines was linked to internal resource generation and capital infusion by government. This was linked to five year plans of government of India. In 1961 Kalinga airline was permitted to provide scheduled services but the venture did not succeed. Further effort in deregulation was indirect through the Air Taxi Scheme introduced in 1986. However, the scheme did not really take off in the initial years due to various operating restrictions imposed in the scheme.

3.4.1.3 From 1991 till date

Just as Indian economy liberalised airline industry was also liberalised. First liberalisation was on cargo movement introducing 'Open Sky' policy wherein unrestricted entry was permitted for all airlines to pick up air cargo. Further, air taxi scheme was liberalised by relaxing lot of restrictions imposed earlier. A number of players registered but the scheme really did not succeed much.

Finally, the Air Corporation Act, 1953 was repealed in 1994 and monopoly of national carriers on domestic and international air traffic was removed. This facilitated entry of private carriers in scheduled flight services and airline travel saw spectacular growth. National Civil Aviation Policy (NCAP), issued in 2016, targets 300 and 5000 million domestic passengers by 2022 and 2027 respectively, 200 million international passengers by 2027 and cargo volume 10 million tonnes by 2027 (Press Information Bureau, 2016).

3.4.2 Policies in development of air transport infrastructure

Civil aviation infrastructure consisting of ground facilities and airspace management was with the Government prior to independence and it continued to be so till 1990s though organisational forms changed. Based on recommendations of Tata Committee four international airports were brought under the control of the newly formed International Airport Authority of India in 1972. In 1986 National Airports Authority was established and it took over the administration of the domestic airports and the navigation infrastructure. In 1994 IAAI and NAA were merged to form Airport Authority of India (AAI) to control all the airports and air space management.

Airport development and modernisation was opened for private sector by amending AAI act in 2003 but air space management was retained with AAI. The process for privatisation of New Delhi and Mumbai airports, leading airports of the country, began in 2003 and they are now operated private entities.

However, Cochin airport was the first greenfield project completed in PPP and was inaugurated in 1999. Later similar green field airports were set up in 2007 at Hyderabad and Bangalore with around 70 % private equity. Recently tender process for development of 6 air ports under PPP was completed and process for privatisation of 6 more airports is in the drawing board stage.

3.5 Water based transport: Ports, Shipping and Inland Transport

Shipping – both Coastal and overseas; inland water transport, and the related land infrastructure including ports and navigational network is included in water transport. India has a coastline of 7517 km with the Bay of Bengal in the East, the Indian Ocean on the South and the Arabian Sea on the West with 5424 km bordering the peninsular mainland and the rest bordering the islands on the east and west (Government of India, 2018, p. 47). It also has

huge navigable inland waterways consisting of rivers, canals, backwaters, creeks spread across the country. Thus, water-based transport is very crucial for the country.

3.5.1 Shipping (coastal and overseas)

Second world war and withdrawal of British had an immediate impact on shipping – shortage of ships leading to escalation of rates and delayed cargo clearance. The Shipping Policy Committee (1947), formed by the interim Government, recommended that 100 per cent of the coastal trade of India; 75 per cent of India's trade with Burma, Ceylon and other neighbouring countries; 50 per cent of India's distant trade; and 30 per cent of the trade formerly carried by Axis vessels in the Orient to be carried by Indian vessels in a reasonable period of 5-7 years. To achieve this committee recommended acquiring 2 million tonnes of gross registered tonnage (GRT) for Indian ships (Commerce Department, 1947, Nayar, 1995, pp. 941-2). Though the recommendations were accepted by the Government immediately, struggle to date is to achieve these goals.

In the overseas cargo though policy targeted 50 % of long-distance trade initially, it was modified in 1974 to 40:40:20 formula with origin and destination countries having 40 % each and others having the balance 20 % (Nayar, 1995, p. 946). Government formed Transchart, a chartering organisation, to give preference to Indian flag carriers to carry Government controlled trade (International Financial Services Centres Authority, 2021, p. 53, Sahai, 1996, p. 270). Such steps, and as India's overseas trade started at a small base, share of Indian ships in overseas trade increased very fast but it could reach 40 % target only in 1975-76. After years of varying around this number it fell down steadily to 31.7 %, 13.7 %, 10.9 % in 1999-2000, 2004-05, and 2011-12 respectively (National Transport Development Policy Committee, 2014c, p. 337). In addition, the composition of fleet is also lop-sided with bulk cargo carriers accounting for accounting for 97 per cent (Ministry of Ports, Shipping & Waterways, 2022b, p. iii). As a consequence, cargo carried by Indian entities is mostly bulk cargo controlled by Indian entities with very little presence in container trades and cross trades (International Financial Services Centres Authority, 2021 p. 60).

Number of initiatives were taken to increase tonnage of Indian flag carriers. This included special financial incentives such as depreciation allowance permitted in 1955 and setting up of the Shipping Development Fund Committee (SDFC) in 1958 (Sahai, 1996, p. 270; Sarkar 1964, p. 276). In addition to the incentives Indian ship owners are also beset with problems like placing of orders for new ships or repairs on Indian ship builders – who are usually 40 – 50 % more costly (Government of India, 1988, pp. 189-190). Thus, the Two million GRT target was reached only in 1969 (Nayar, 1995, p. 943). While the SDFC was discontinued in 1986, shipping companies got support for Indian flagging in different forms and the GRT in 2021 is 12.99 million with 1491 ships (Ministry of Ports, Shipping & Waterways, 2022a, p. i).

Government set up Shipping Corporation of India (SCI) under public sector in 1961 amalgamating two public sector companies - Eastern Shipping Corporation - set up for cargo in Eastern sector in March 1950 on a State-cum-private ownership basis and later a completely government owned company; and the Western Shipping Corporation - set up for the cargo in Western sector in 1956 (Sarkar, 1964, p. 278). Since then, SCI has played a dominant role in Indian shipping scene and by 31 December 2021 SCI owns 66 ships with 3.1 million GRT – accounting for 24 % of the Indian registered GRT (Ministry of Ports, Shipping & Waterways, 2022a, pp. i& 171).

In 1950, Government announced that coastal trade would be progressively reserved for Indian bottoms (Bhir& Pradhan, 1955 p. 463). However, it was easier said than done. Coastal transport, while facing all the problems relevant to shipping industry has to deal with issues related to coastal trade. The issues include agglomeration from and distributing to hinterland regions, compete with railways and trucks for the inland mode and compete with

larger ships for berthing at ports. Since 1950s it grew steadily from 3.7 million tonnes in 1956 to around 6.5 million tonnes in 1962 and then it was followed by a steady decline to around 3.5 million tonnes in 1978 (Government of India, 1980, p.266). Analysing the scenario NTPC felt that under present operating regime coastal cargo would be limited to project cargo movement and it may not have a major role in integrated transport movement in India (Government of India, 1980, p. 282). However, it made many suggestions pertaining to various issues and this was also followed by various policy measures and coastal cargo movement increased to 59 million tonnes in 2006-07 (RITES, 2009, p. 5) and to 74 million tonnes in 2020-21 (Ministry of Ports, Shipping & Waterways 2022b, p. 41).

3.5.2 Ports

Partition of the country badly impacted the port operations with loss of two ports (Karachi in the West and Chittagong in the East) out of the seven major ports in the undivided country (Vakil, 1950, p. 421). Loss of ports also impacted the hinterland as transport networks were linked to these ports.

The West Coast Major Port Development committee was set up in 1948 to recommend for two ports - one towards the north and another towards the south of Bombay. The committee recommended in 1950 the development of Kandla port on the north (Vakil, 1950, p. 421) and Mangalore on the south. Over period of time 7 additional major ports were developed making a total of 12 major ports.

Before independence, financing of the major ports was usually through market borrowings and Port trust owned funds. Start of five-year plans facilitated funding through plan programmes and from loans from the government and international agencies. The plans ensured capacity enhancement at major ports as well as development of smaller ports. However, after 1990s, emphasis was on involving private capital in developing port infrastructure at the major ports. As per maritime vision for 2030 out of Rs 334 billion required for major port capacity expansion Rs 321 billion (more than 95 %) is to be financed through private capital (Ministry of Ports, Shipping & Waterways, 2020, pp. 45-48).

While major ports were administered by the centre, non-major ports, initially called minor and intermediate ports, are in concurrent list and are administered by the states. They are 200 plus in number of which 61 are operational for handling cargo (National Transport Development Policy Committee, 2014c, p. 310). A notable feature, especially after 90s, is the growth of non-major ports. As these ports are under the state control, they were tendered out to private parties to develop the ports on PPP basis. The ports have grown so much that 2 non major ports figure in the seven ports having 100 million tonne per annum capacity in the country (Ministry of Ports, Shipping & Waterways, 2020, p. 50). This will also be supported by data presented in the later section.

Administration of ports is also an important and a much-discussed item. 11 Major ports are functioning as trusts, exception being Kamarajar port at Ennore (North of Chennai), and are hamstrung by inadequate delegation of powers (see Government of India, 1980, p. 320). While originally, they were working as full-service ports efforts are to transition to land-lord ports but are facing major problems in the transition (National Transport Development Policy Committee, 2014c p. 335). Tariff setting is charged to Tariff Authority of Major Ports (TAMP) and there are inherent delays in the whole process. All this has not only constrained major ports but has created an unequal level playing field between major and non-major ports. Major Port Authorities Act 2021 is expected enable the Major ports towards this process with corporatisation of the ports and tariff to be set as per market conditions (Ministry of Ports, Shipping & Waterways, 2020, pp. 126-127). As these policy issues are under implementation their impact will be known later.

3.5.3 Inland water transport (IWT)

Inland water transport is a divided responsibility between central and state governments. Central government is responsible for a) shipping and navigation on inland waterways, declared by Parliament by law to be national waterways, b) as regards mechanically propelled vessels; the rule of the road on national waterways, and c) Carriage of passengers and goods by national waterways in mechanically propelled vessels. State governments are responsible a) inland waterways traffic thereon subject to the provisions of List I and List III with regard to such waterways; and b) vehicles other than mechanically propelled vehicles. And in the concurrent list Shipping and navigation on inland waterways as regards mechanically propelled vessels, and the rule of the road on such waterways, and the carriage of passengers and goods on inland waterways subject to the provisions of List I with respect to national waterways (Government of India, 2022 pp. 311-316)

While both centre and state are responsible for development of IWT, as Committee on Transport Policy and Coordination observed in 1966 “In view of the considerable lag in the development of waterways which has occurred over nearly two decades, it will be necessary to provide resources on a fair scale in the Fourth Plan so that the impetus given may yield early results. (Government of India 1966, pp. 144-145). Further as observed by NTPC (Government of India 1980, p. 284), IWT “lost its competitive edge because of diversion of waters from rivers for irrigation, deforestation of hilly ranges leading to erosion and accumulation of silt in rivers and neglect in maintenance of waterway channels. Consequently, there was a reduction in the length of navigational waterways. In addition, inadequate attention was paid to modernisation of fleet and to research and development in vessel design to suit local conditions”. Thus, in addition to neglect, priorities in use of water in other areas is also an important aspect in growth of IWT.

In addition to the above, partition badly impacted the IWT in Eastern part of the country. Cargo moving from Bengal and Assam to Calcutta port lost access to the waterways and cargo originating in the current Bangladesh lost access to the ports (Medhi, 2004).

Central Inland Water Transport Corporation (CIWTC), a government company, set up in 1967, for operations in the North Eastern India. It had 20 steamers and 50 flats with carrying capacity up to 700 tons in each, but it was running at a great loss for various reasons (Medhi, 2004 p. 526) and stopped operations (Government of India 1988, p. 170). Government set up the Inland Waterways Authority of India (IWAI) in 1986 and it was mandated to regulate and development of Inland Waterways for transport. Waterways Act, 2016, mandates development of 111 Inland National Waterways (INW) network covering 20,275 km. (Government of India, 2016) and IWAI is tasked to undertake these functions.

As per the 2020 policy initiatives Government of India initiated steps to increase IWT in cargo to more than 200 million tonnes (greater than 5 % of total share of inland cargo) and passenger transport from 140 million to 700 million passengers by 2030. To achieve this, it proposes to operationalise 23 waterways with government funding through IWAI and develop terminals in PPP mode with active involvement of state governments. It also proposes to strengthen ferry and Ro-Ro services (summarised from Ministry of Ports, Shipping & Waterways, 2020 pp. 167-187).

3.6 Urban transport

Initially urban transportation issues addressed were limited to the four metropolitan cities of Kolkata, Mumbai, Delhi and Chennai – with special focus on Mumbai and Kolkata. This is corroborated as half a dozen committees formed before 1980s dealt exclusively with these four cities (Government of India, 1980, p. 222).

While the Metropolitan transport planning group in the Planning Commission for the urban transport was wound up in 1974 (Government of India, 1980, p. 235), alternate mechanisms were never formulated till 1986 when it was assigned to Ministry of Urban Development as per the business allocation rules. Between 1974 and 1986 subject of urban transport was handled by Ministry of Railways, albeit reluctantly, and as railways had no knowledge of different modes of transport it did not develop a policy statement for urban transport. Further, as highlighted at different points of time, it only spoke of how urban transport systems were loss making and railways should exit the system.

Ministry of Urban Development formulated the national policy documents called National Urban Transport Policy (NUTP) in 2006 (Ministry of Urban Development, 2006), and followed by a slightly revised policy in 2014 (Ministry of Urban Development, 2014). The policy documents after discussing various modes of transport left the choice of the mode of transport to the state governments or the local governments.

Since the 2000 urban transport has become a focus area with central, state and local governments, especially in large cities, focussing on resolving urban transport problems. Ministry of Urban Development (MOUD) mandated preparation of comprehensive mobility plans (CMP) as a prerequisite for funding urban transport projects of the cities. A large number of urban bodies prepared CMPs and kept them in the public domain (for a review of the state of urban transport and city CMPs please see CSTEP and IUT, 2014).

Only policy instrument available to the central government was through the financing of the projects. However, deviating from NUTP which emphasis on development of all modes, investments were primarily directed in two modes of transport – metro rail systems and expansion of road network (Ravibabu & PhaniSree, 2012) at the cost of other modes especially public transport and non-motorised transport.

3.7 Performance of Different Modes of Transport: Comparative Assessment

Data on passenger kilometres moved and tonne kilometres moved by airways, road and rail, and traffic handled at all the ports is presented below and it indicates the growth of different modes from 1947.

Table 4: Growth of traffic by airways, roadways, and railways and at ports

Year	Airways		Roadways		Railways		Ports
	Passenger kilometres (PKMs) (in millions)	Total Tonne kilometres (TKMs) (in millions)	Passenger kilometres (PKMs) (in millions)	Total Tonne kilometres (TKMs) (in millions)	Passenger kilometres (PKMs) (in millions)	Total Tonne kilometres (TKMs) (in millions)	Traffic handled in million tonnes)
1950-51	414	18	15,000	1,000	66,517	37,565	10
1955-56	586	27	43,000	8,000	74,533	55,249	23
1960-61	938	30	71,000	15,000	77,665	72,333	40
1965-66	1,170	37	1,17,000	31,000	1,02,058	88,885	50
1970-71	1,432	43	1,89,000	52,000	1,18,120	1,10,696	62
1975-76	1,694	49	2,93,000	56,000	1,63,060	1,32,310	73
1980-81	1,956	55	4,21,000	84,000	2,08,558	1,47,652	139
1985-86	2,218	61	7,39,000	1,61,000	2,58,292	1,90,756	219
1990-91	2,480	67	12,47,719	2,64,786	2,95,644	2,35,785	299

1995-96	10,865	286	16,28,107	4,16,115	3,87,462	2,86,783	314
2000-01	12,283	1,223	20,76,000	4,94,000	4,57,022	3,12,371	374
2005-06	23,709	2,340	42,52,000	7,28,000	6,15,614	4,39,596	609
2010-11	52,707	4,758	84,09,000	12,87,000	9,78,508	6,25,723	875
2015-16	80,966	7,735	1,54,28,000	20,27,000	11,43,039	6,54,481	1,114

Notes:

Data Sources: Publications of the ministries, various policy reports referred in the text

Comments: 1. Data in bold indicates that data is not available for that year and it is an estimate by authors using linear regression combined with contextual knowledge. As our focus is on relative trends, we have used these estimates to indicate the broad trends.

2. Years are financial years corresponding to the period from April to March of the next year – example 1950-51 implies April 1950 to March 1951.

From the Table 4 it can be seen that certain modes like roadways grew very fast and those like railways grew very slowly. This can be seen in Table 5 where output from each mode in the year 1950-51 is taken as base and rest of the years are indexed to this base.

Table 5: Trends in growth of each mode with 1950-51 as the base year (=100)

Year	Airways PKMs	Airways TKMs	Roadways PKMs	Roadways TKMs	Ports Traffic handled	Railways PKMs	Railways TKMs
1950-51	100	100	100	100	100	100	100
1955-56	142	150	287	800	233	112	147
1960-61	227	167	473	1,500	407	117	193
1965-66	283	206	780	3,100	520	153	237
1970-71	346	239	1,260	5,200	643	178	295
1975-76	409	272	1,953	5,600	753	245	352
1980-81	472	306	2,807	8,400	1,432	314	393
1985-86	536	339	4,927	16,100	2,257	388	508
1990-91	599	372	8,318	26,479	3,082	444	628
1995-96	2,624	1,590	10,854	41,612	3,239	583	763
2000-01	2,967	6,794	13,840	49,400	3,861	687	832
2005-06	5,727	13,000	28,347	72,800	6,282	925	1,170
2010-11	12,731	26,436	56,060	1,28,700	9,020	1,471	1,666
2015-16	19,557	42,973	1,02,853	2,02,700	11,488	1,718	1,742

The figure given below highlights the differential growth of different modes. It shows that while traffic by roads and airways increased very fast and traffic at ports increased but was not as fast as road and air. Growth in railways was the most sluggish and one important reason is the high base it started with in 1947. However, this alone does not indicate the complete picture as road traffic increased dramatically in spite of a large base in the past 20 years compared to railways. Further reasons are explored in the later sections.

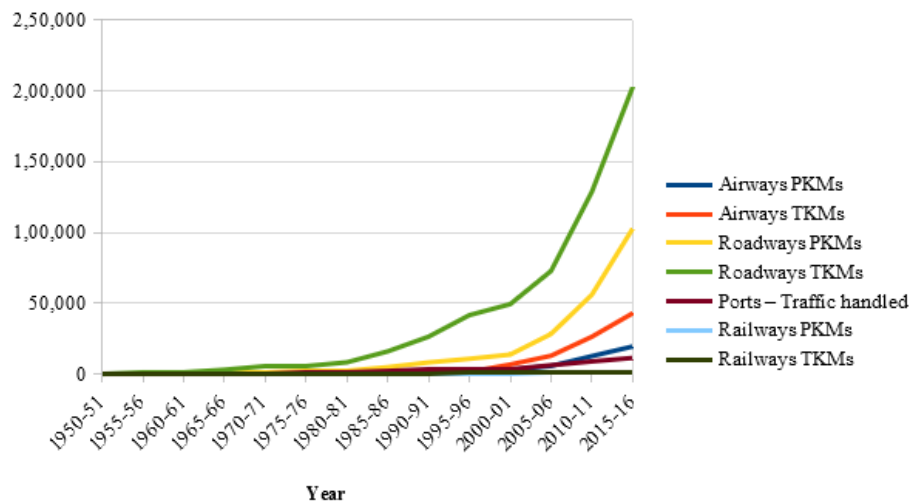


Figure 1: Growth of traffic by air, road, rail and at ports (base year 1950-51 as 100)

3.8 Integrated Transport Policy: Critical Evaluation

This section analyses the eight reports described earlier on the three key recommendations considered vital by these committees for an effective nation-wide transport policy and reasons for their non implementation are also highlighted. The three being - greater role for railways, integrated transport policy and co-ordination of transport modes, and data collection and research. The section also highlights why they were never realised.

3.8.1 Key recommendation 1: greater role assigned to railways

All the committees assigned very important role to railways. NTPC recommended “Movement of commodities are generally economical by road for shorter distances up to 300-350 kms., beyond this range, cost advantage lies with the railways.”. Based on this it concluded that by the year 2000 share of railways and road transport would be 72 % and 28 % in tonnes kilometres carried (Government of India, 1980, pp. 68 & 366). Similarly, Steering Committee on Perspective Planning for Transport Development (SCPPTD) analysed the system, again based on resource costs projected that by the year 2000 share of railways and roads should be 63 % and 37 % in tonne kilometres (Government of India, 1988, pp. 80-81). However as per 2006 nation-wide survey by RITES the share of rail and road in 2006 in TKMs was 36 and 50 per cent respectively (RITES, 2009, p.6).

While both the committees were formed when policy of liberalisation was not the dominant mantra of the ruling governments, NTPDC was formed when liberalisation policies were well entrenched. However, NTPDC also recommended that railways share should increase from 35 % to at least 50 % of freight tonne kilometres by 2032 (National Transport Development Policy Committee, 2014c, pp 6 & 28).

However, as seen in the previous section, and despite aspirations of many committees, the slide in the share of railways in total traffic continued and continues inexorably. In 2006, last year for which nation-wide surveys were conducted, railways share in tonne kilometres was 36 % - much lesser than NTPC’s and NTPDC’s aspirations of 63 % and 50 % respectively. Many people have analysed the reasons but two crucial decisions are investment and pricing. NTPC itself put them succinctly and we reproduce, “An increase in rail share from 67 to 72 per cent which we have visualised will not materialise unless appropriate investment and pricing policies are pursued to ensure the suggested modal split. ... policy decisions (made), ... so that railways are in a position to meet the projected demand for

freight, ... avoiding bottlenecks” (Government of India, 1980, p. 68). As seen above pricing and investment decisions were all made subject to political expediency. Hence railways out priced itself compared to road transport if one considers the total logistics cost. More important are the bottlenecks to carry all kinds of cargoes in the shortest possible time remained and continue to plague the system.

3.8.2 Key recommendation 2: integrated transport policy and co-ordination of transport modes

Process for formulation of a well-co-ordinated transport policy where every mode of transport plays the role assigned to it started early in the 20th century but it is proved illusory. The process started in 1932 with Mitchell-Kirkness Committee and they recommended “Where, however, they are not so greatly superior we doubt the wisdom of paying for dual facilities causing inroads into railway revenues. A system of zoning of motor transport on parallel competitive routes within a range of about 50 miles might be considered. We do not think that this would seriously affect present businesses, or substantially reduce the losses of railways. It would, however, localise competition to what appears to be the appropriate field of motor transport.” (Mitchell & Kirkness, 1933 p. 75).

The above indicates an effort to regulate road transport and the same spirit continued till 1960s when the Committee on Transport Policy and Co-ordination emphasised co-ordination and proper sharing of traffic. It recommended an appropriate unit under the planning commission. Similar units were recommended in the states (Government of India, 1966 pp. 163-175). This never happened and it was prominently highlighted by NTPC (Government of India, 1980 p 121).

NTPC, after not favouring the idea of common ministry for all modes of transport, recommended a “National Transport Commission at the Centre and Transport Boards at State levels. The proposed Commission should be concerned with all modes and deal with all aspects of transport policy, including investment, pricing and regulation, within a common policy framework” (Government of India, 1980, pp. 123-125). However, the recommendation was never implemented.

SCPPTD, while discussing about setting up of an institutional mechanism for policy making, felt that as “the respective roles of railways and road transport are getting better defined and the traditional problem of coordination between them has lost much of its seriousness” stated that “there is, therefore, no strong case now to set up a national transport commission of the type recommended by the NTPC which will take care of coordination of the operations and freights and fares of the various transport modes in the country” (Government of India, 1988 p. 118-119). It finally recommended “we do consider it necessary that Planning Commission gets appropriately organised for policy and project appraisal, Preparation of project reports should remain the responsibility of respective Ministries and the Planning Commission should be able to advise them on data collection and project and policy formulation on a sound basis. The Transport Division in the Planning Commission is responsible for coordination of transport investment plans and the Division should be able to keep policies and plans for development of transport under continuous review and direct detailed supporting studies to be conducted in the ministries for such a review (Government of India, 1988 p. 120). Thus, effectively the Committee felt that no separate policy making body is necessary but existing arrangements needs to be strengthened.

NTPDC, suggested multi-fold measures for development of the sector. Administratively it recommended creating consolidated Transport Ministry to focus on systemic performance. It also suggested setting up an Office of Transport Strategy (OTS) to coordinate transport policies at the national level while simultaneously recommending decentralised policy and planning including urban transport to the constitutionally recognised

urban and metropolitan governments. Building an interdisciplinary cadre of transport experts. (para-phrased from National Transport Development Policy Committee 2014a, p. 17)

It also recommended a comprehensive regulatory environment to govern transport flows. It suggested that multiple acts in each sector need to be unified into a single statute in each sector and the unification of the legislations must be supplemented by the setting up of a statutory regulatory agency for each transport sector. It also suggested setting up tariff regulatory authority for railways to provide a level playing field to all stakeholders. An expert authority should be set up to regulate and monitor PPP projects. It highlighted and prioritised the need for providing a level playing field in the port sector by unifying national and state regulatory structures for Indian ports. In civil aviation it recommended a central regulatory agency called civil aviation authority (CAA) to replace existing two bodies regulating the sector. Finally, recommended setting up a dedicated metropolitan Urban transport authority (MUTA) in cities with population in excess of 1 million and dedicated cells in smaller cities for integrated planning and coordination and delivery of urban transport services. (National Transport Development Policy Committee, 2014a, p. 21).

3.8.3 Key recommendation 3: data collection and research

The need for data collection was felt from the beginning. In 1932, Mitchell Kirkness Committee recommended “Road authorities, registration authorities, taxation authorities, and railways are all interested in statistics regarding commercial motor transport. These authorities at present often work independently; duplication of work would be avoided and proper statistics would be available if the traffic authority kept and published such statistics.” (Mitchell & Kirkness, 1933 p. 75).

It is repeated by all the other committees. For example, in 1966, the Committee on Transport Policy and Coordination recommended, “Transport is a highly capital-intensive field of development. Therefore, application of appropriate cost-benefit criteria for selecting projects, careful attention to their preparation and execution according to schedule, the building up of adequate technical organisations, collection on a continuing basis of economic, and statistical data and projections of future growth, determination of costs, adoption of programming techniques and sound management practices, correct pricing policies and studied efforts to reduce costs of transport and foreign exchange expenditures are essential to the successful operation of transport services and the generation of internal resources for future development to the greatest extent possible. (Government of India 1966, p. 182).

Similar were the recommendations of the succeeding committees including the latest NTPDC report submitted in 2013. It, while analysing the lack of capability and also presenting the urgent need for improving transport capability, it recommended setting up “an Indian Institute for Transport Research and an Indian Institute for Transportation Statistics”. It also stated that each transport Department should establish a multidisciplinary research organisation for applied research on current concerns and future technology development (National Transport Development Policy Committee, 2014a, p. 40).

3.8.4 Key recommendations – their status

Unfortunately, the key recommendations discussed above have remained a mirage in spite of repeated emphasis by all the committees. While reasons are many and varied - and reasons for not achieving and/or non-implementation of a recommendation needs independent research; an attempt is made here to outline a few reasons for each recommendation.

Most important is the failure of railways in carrying more traffic and one look at the three primary causes. First, is the pricing. Most committees (mainly NTPC of and SCPPTD of 1988) looked at the costs, both financial and economic, while recommending higher share

for the railways. However, barring few bulk commodities where railways is the main carrier and could dictate its prices, price was market determined and customer was highly price conscious. Further, pricing in railways was more of an administrative decision than a market driven phenomenon. Thus, barring a few bulk commodities, railways were out priced by road transport in other commodities.

Next, is the access to railway services and service quality. Since 1980s railway switched over to block rakes and increased the shipment size substantially. Thus, small producers including a large number of industries and agricultural producers, switched over to road transport. Accelerating the switch was the rigidity of rules in railways and their myriad, and near mythical, interpretations. Further, the large monolithic set up also discouraged many users. Thus, railway share in the total cargo moved kept coming down.

Issue of setting up an entity facilitating all modes to develop optimally and as per the needs of the economy was never seriously attempted. Various entities existing at the time of independence were never effective and were soon non-functional – though survived on paper for very long. In early eighties all transport modes were configured to work as departments under a single ministry (same as what NTPDC recommended much later). However, it did not function effectively and it was given up soon. Since then, and as SCPPTD highlighted in its report in 1988, co-ordination and co-operation are no more relevant issues as market mechanisms are in place and doing the job.

Only serious effort in co-ordination, however limited only to investment, was made during preparation of five-year plans by the Planning Commission. However, once plans were approved, then Planning Commission did not have wherewithal to ensure that the plans were being implemented except for mid-term reviews. However, the reviews were far and few and thus most of the Ministry's decisions, even if they were deviating from the plan objectives, were treated as a done deed.

Reasons for failure of the co-ordination can be traced to the diverse nature of various modes and peculiarities of the Indian political system. As seen above, each mode, while serving the same job of moving material and people, were entirely different from one another in their technology and their characteristics. Some of the modes, such as railways, are also humongous. Thus, keeping all of them under one entity appeared nearly impossible.

For the first fifty years, congress was the dominant political party in the centre and in state governments. Later, for the next 30 years, central governments were coalition governments with pressure from allies and thus in some cases the ministry was treated as fiefdom. This specially applied to railways as it had a large amount to spend (from 1924 to 2016 it had a separate budget), large manpower and national reach under a single administrative set up. Thus, under coalition governments, as discussed earlier, rail ministry was headed by a one of the powerful allies. Thus, one agency was almost never pursued politically.

Third important recommendation is compilation data on transport flows and costs for development of capability and analytics in the sector. Unfortunately, no attempt was made collecting the data at a disaggregate which included teaching, training and research within and mode and across modes. Primary requirement for these would be good academic institutes and good data sets. There many good academic institutes teaching topics in different modes transport but are mostly limited to a specific mode of transport. Initially Railway Ministry and later other Ministries set up institutes for training their personnel. Though teaching has improved, an integrated approach is still a far cry.

Most important lacuna for research and analytics is the data availability. Though there is copious amount of data on transport costs and flows it is not consolidated in a central location. It is the lack of such data which has restricted research in a serious manner. With recent efforts in digitation of the transport processes it is easy for Government of India to

collect and compile data and share with the public. However, as of now, such action is seen in this direction.

4. CONCLUSIONS AND WAY AHEAD

The paper gives an outline of development and growth of different modes of transport in India and also highlights attempts made in developing an integrated transport policy. It also showed that though repeated efforts were made for an integrated transport policy such a policy was neither formulated nor implemented. Attempts at evolving a common policy gave only pointers for further action. Three key recommendations of various policy committees - namely increased rail share, common policy implementation platform, and mechanism for data collection and a data driven policy formulation, research, teaching and training are still not in place.

Keeping the above in view what is the way forward? Given the government policy orientations of liberalisation, privatisation, and less government and more governance (Modi, 2014; Bharatiya Janata Party, 2019 p. 24) direct interventions in the transport market like quotas, licences or restrictions are ruled out. They are also not required, except in exceptional cases and this is also confirmed from the observations of SCPPTD in 1988 (Government of India, 1988, pp. 118 - 199) that centrally directed co-ordination between various modes is no more required as market conditions have stabilised.

In these circumstances providing level playing field for various modes to contest in the market is probably the most desirable policy intervention. Three important policy instruments are investment, taxation and pricing. Investment needs have to be assessed on common parameters across all the modes. Taxation burden should be borne uniformly across different sectors and subsidies should be explicitly brought out. Pricing is an important issue and prices are unregulated or minimally regulated in some areas, like in airlines and trucking but is heavily regulated in rail and road passenger segments. Thus, transport markets are distorted influencing transport mode choice. In addition, one has also to account for positive externalities (such as boost to other economic activities provided by the transport) and negative externalities (such as damage to environment) for any investment decisions.

All the above needs analysis based on data. However, data availability in transport sector is woefully inadequate and it needs to be strengthened. Similarly, capability to use the data usefully is also a primary requirement of academic institutes. This is one item emphasised by all the policy formulations committees.

To conclude, transport policy, though recommended by various committees, could never be implemented due to the complex nature of the task. One body to control complete transport industry has also proved elusive. In the current economic and political context, providing a level playing to all the modes would be a desirable policy push. To provide such a push it is necessary that implications of various decisions are well analysed. Thus, any policy formulation should be on the basis of sound analysis based on sound data. Thus, immediate need is to facilitate good data collection mechanism and developing professionals for analysing the data.

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