

Critical Assessment of Urban Public Transport Considering National Urban Transport Policy (NUTP): A Case study of Ahmedabad City, Gujarat, India

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Abstract -Urban transport in India is at a stage where, if no further measures are taken up, the situation of urban transport will start worsening. Already the public transport in the city is unsatisfactory, unreliable, and slow. Also, the number of private vehicles has increased by 219% from 2001 to 2016. This provides an insight into the dire need for regulating urban transport in the country. The study area selected is the city of Ahmedabad. Ahmedabad, situated in the Gujarat state of India, has a population of 6.3 million and is the seventh-largest metropolitan area of India. Initially, the area of Ahmedabad was 190 sq. Km. With this increase in area and sprawl, there was undoubtedly a dire need for the provision of infrastructure and connectivity. Ahmedabad Municipal Corporation (AMC) is owning two primary public transport systems. It includes Ahmedabad Municipal Transport Service (AMTS) running in mixed traffic and Bus Rapid Transit System (BRTS), run by Ahmedabad Janmarg Ltd (AJL), which has its dedicated corridors. To tackle the increasing urban transport problems, the National Urban Transport Policy (NUTP) was launched in mid-2006 by the Ministry of Urban Development (MoUD) to motivate people integrated urban public transport solutions and not focusing on upgradation of the condition for private motor vehicles. The NUTP has identified a broad spectrum of public transport technologies ranging from the high capacity metro systems to medium capacity bus rapid transit systems apart from the existing suburban rail and bus systems. The present paper is all about studying the efficiency and functioning of public transport. Whether the objective of NUTP has been met in Ahmedabad or not. This study aims to identify gaps in public Transport in Ahmedabad regarding NUTP and provide the suggestion for better implementation of the public transport project.

Key Words:NUTP (National Urban Transport Policy), Public Transport, Connectivity, Integrated Urban Public Transport

1. INTRODUCTION

India is quickly changing into urban culture. Census figures that were released lately show that urban India, with 377 million population, represents 31% of the complete population. By 2031, the urban population is believed to reach around 600 million increasing the urbanization rate from 31% to 40%. The quantity of enormous urban areas is likewise expected to ascend from 50 metropolitan urban cities in 2011 to 87 by 2031. Currently, there are 3 urban areas with more than 10 million population - Mumbai, Delhi, and Kolkata. By 2031, all things considered, there will be 8 megacities with a population of 10 million or more. Notwithstanding Chennai, Bangalore, and Hyderabad, with patterns emphasizing, Ahmedabad and Pune are likewise liable to join this gathering (Mumbai, Delhi, and Kolkata) of urban cities with 10 million or more population (Hiraide, Kawasaki, & Hanaoka, 2019).

The number of inhabitants in Ahmedabad is expanding alongside financial development. It turned into India's fifth most significant city in 2011. The quantity of enrolled vehicles in Ahmedabad has additionally expanded quickly, causing monetary misfortunes and natural issues because of the extreme traffic blockage. To take care of those issues, the Bus Rapid Transport System (BRTS) started working in 2007, while the transport organization called the "Ahmedabad Municipal Transport Service" (AMTS) started in 1947. Notwithstanding, these open vehicle frameworks represented just 12% of the modular offer in the city, though private vehicles represented 36% in 2011. In Indian urban communities, the absence of successful arranging and land-use controls has brought about broad spread improvement expanding quickly every which way, expanding the number and length of trips for most Indians, including those utilizing the public vehicle. The unlimited improvement has brought about huge increment in rush hour needs, the number of vehicles and the availability needs of the urbanizing population,

thus putting a gigantic weight on the vehicle framework, particularly public vehicles.

The National level policy in the form of the National Urban Transport Policy (NUTP) was introduced by the Government of India in 2006 with the objective of meeting the transportation needs of an urban population and initiated many urban transport projects under the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) and other such schemes. The Jawaharlal Nehru National Urban Renewal Mission and the National Urban Transport Policy have given rise to bus rapid transit systems in many Indian cities, and Ahmedabad's Janmarg is the largest such network in operation right now. This paper briefly analyses the urban public transport status and the challenges faced by Ahmedabad, India. Also, it presents the efforts made under the National Urban Transport Policy (NUTP) and the Jawaharlal Nehru Urban Renewal Mission (JnNURM) by the national, state, and local bodies (TRANSPORT & 2013, 2017).

2. Thorough Review of Relevant Literature: NATIONAL URBAN TRANSPORT POLICY, 2006

The Government of India presented a National Urban Transport Policy to arrange a decent improvement of the urban region (MoUD 2006). Under the NUTP, every city with a populace of more than 4,000,000 will be energized by the focal government to begin getting ready for a mass travel framework receiving an innovation that would 'best suit the city prerequisites in the following 30 years'.

Table 1: Devolution of Functions in Urban Transport in India

Urban Transport Functions	Central	State / Regional Level	Local
Policy	Ministry of Urban Development (MoUD)	Urban Development Department (UDD)(P)	Municipal Corporation (MC)
Transport planning		Urban Development Department (UDD)	Development Authority (DA) (P)

Land-use – planning		Urban Development Department (UDD)	Development Authority (DA) (P)
Road infrastructure (O & M)	MORTH, NHAI	Public Works Department (PWD)	Municipal Corporation (MC) (P)
Suburban rail system	Indian Railways (IR)		
Bus transport service and depot operations		State Road Transport Corporation (SRTC)	Bus Corp.(P)
Bus regulations and licensing	MORTH	State Transport Authority (STA) (P)	
Traffic management		Police (P)	Municipal Corporation (MC)
Traffic engineering		Police	Municipal Corporation (MC) (P)
Traffic enforcement		Police	
Motor vehicle registration		State Transport Authority (STA)	
Motor vehicular safety and emission regulations		State Transport Authority (STA)	

(Source: Chapekar, 2010)

The approach additionally features the requirement for connecting the vehicle plans with the geological limitations of its area, expanded need to open vehicle, non-mechanized vehicle, and improving leaving offices. The approach urges to set up Unified Metro Transport Authorities (UMTA) in urban communities with a million or more populace. This is tried to be accomplished for the following targets:

- Incorporating urban transportation as a significant parameter at the urban arranging stage as opposed to being a considerable necessity;
- Encouraging coordinated land use and transport arranging in all urban areas with the goal that movement separations are limited and access to employment, instruction, and other social needs, particularly for the minor sections of the urban populace is improved; Improving access of business to business sectors and the different elements of creation;
- Bringing about a progressively impartial portion of street space for walkers, instead of vehicles;
- Encourage more prominent utilization of open vehicle and non-mechanized modes by offering Central monetary help;
- Enabling the foundation of value-centered multi-modular open vehicle frameworks that are all around incorporated, giving consistent travel across modes;
- Establishing viable administrative and requirement instruments that permit a level playing field for all administrators of transport benefits and upgraded security for the vehicle framework clients;
- Establishing institutional instruments for upgraded coordination in the arranging and the board of transport frameworks;
- Introducing Intelligent Transport Systems for traffic the board;
- Addressing worries of street wellbeing and injury reaction;
- Reducing contamination levels through changes in voyaging rehearses, better requirement, stricter standards, mechanical upgrades, and so forth;
- Building limits (institutional and labor) to get ready for feasible urban vehicles and building up information the board framework that would support the necessities of all urban vehicle experts, for example, organizers, scientists, instructors, understudies, and so forth.;
- Promoting the utilization of cleaner advances;
- Raising accounts, through imaginative systems that tap land as an asset,
- For interests in urban vehicle framework;
- Associating the private segment in exercises where their qualities can be beneficially tapped; and
- Taking up pilot extends that show the capability of conceivable prescribed procedures for the economical urban vehicle.

NUTP 2006 imagines for getting an economical advancement in the field of transport by receiving different substantial and immaterial techniques. In any case, logical inconsistencies between the methodologies of Central/State service approaches and missing connections in the lower echelons come as obstacles for the execution of the arrangement. Alongside NUTP 2006 Central Government has started Jawaharlal Nehru National Urban Renewal Mission (JnNURM) in 2006(GoI, 2006).

JAWAHARLAL NEHRU NATIONAL URBAN RENEWAL MISSION (JnNURM)

In 2005, the Government of India (GoI), Ministry of Urban Development (MoUD), propelled the Jawaharlal Nehru National Urban Renewal Mission (JnNURM). This mission was propelled with a means to energize urban level changes and quick track arranged foundation improvement of recognized "mission cities" (MoUD, GoI, 2005). These urban communities were chosen based on the populace or them being State capitals or having certain extra highlights. A bunch of 63 cities was recognized, each having at least one million populace including the seven metropolitan urban communities with more than 4,000,000 populace and twenty-eight urban areas that were State capitals or had notable, strict, or traveler significance. Later on, two additional urban areas were added to the arrangement of mission

citystating the aggregate to 65. The term of JnNURM has been kept as 7 years starting from 2005-06.

Under JnNURM, monetary help is being given to every one of the urban communities for explicit undertaking arranging, advancement, and usage for tasks of water supply, sewerage, seepage, strong waste, urban vehicle, urban recharging, legacy protection, and ghetto improvement. In any case, among all other framework divisions, urban vehicles requested exceptional thought, as showed by the unprecedented development in urban rush hour gridlock conditions, exhausting open vehicle administrations, and the effect of street contamination on the urban condition (GoI, MoUD, 2010). This achieved the union of NUTP and transport-related JnNURM ventures(Mahadevia, Joshi, & Datey, 2013).

PUBLIC TRANSPORT AFTER NUTP AND JnNURM

Each one of the three levels of administration has been progressing in the direction of a shared objective of giving quality open vehicle offices to urban regions. Different kinds of open vehicle frameworks like Metro, monorail, BRTS, and present-day transport administrations are presented or reinforced by following the destinations in the NUTP 2006. Table-2 gives a rundown of rail-based MRTS ventures started in India. Before the presentation of NUTP and JnNURM, just four urban areas had a rail-based MRT framework for providing food, the consistently expanding travel request in India (Singh S K, 2005). Still, now eight urban areas in India are proceeding with the development of metro rail undertakings, and four urban communities are proceeding with the readiness of definite venture report and geo-specialized review. Although the Delhi metro began working from the year 2002, it got a lift after the presentation of NUTP. It has been chosen to lead practicality concentrate for Metro rail in every single Indian city refer to 2,000,000 population(Dijst, 2004).

Mostly buses used to convey in excess of 90 percent of the public vehicle in Indian urban communities. To be sure, most Indian urban communities have no rail transport at all and depend rather on a mix of transports, minivans, auto-rickshaws, cycle rickshaws, and cabs. Indeed, even in the majority of the biggest urban areas, rail transport conveys not precisely 33% of public vehicle travelers. The principal exemption is Mumbai, which has India's most broad rural rail arrange, conveying in excess of 5 million travelers every day -

58% of the all-out open vehicle travelers in the locale (versus 42% by transport) and 80% of all-out traveler km (versus 20% by transport) (Brihanmumbai Electric Supply and Transport Undertaking 2003; Indian Railways 2002). Presently, Ahmedabad and Pune are the leaders in effectively running BRTS, and a few urban communities in India have taken up the task for usage. The subtleties of major BRTS ventures are given in Table-3. With the presentation of the BRTS Project, the modular portion of the public vehicle has expanded significantly in all the mission urban communities.

Table-2: Status of Metro Construction in India

City	Status of Implementation	Population	Length of Corridor in KM	PT share (%)
Kochi	Under Construction	2,117,990	25.61	73.00
Jaipur	Trial run/ Under Construction	3,073,350	11 (Phase I), 23 (Phase II)	26.00
Chennai	Under Construction	8,696,010	Stage-1 : 11.00 Stage-1A : 10.00 Stage-2 : 24.00	31.00
Bengaluru	Functioning/ Under Construction	8,499,399	Phase - 18.10 Phase - 24.20	42.00
Hyderabad	Under Construction	7,749,334	71.16	45.00
Kolkata	Under Construction	14,112,536	25.10/8.55	66.00
Mumbai	Under Construction	18,414,288	Phase I - 62.79	78.10

Delhi	Functioning	16,314,838	Phase I - 65.00 Phase II - 124.63 Airport Link 22.70 Phase III - 112.17	45.00
Ahmedabad	DPR and Geotechnical survey	6,352,254	82.33	11.00
Pune and Pimpri-Chinchwad	DPR and Geotechnical survey	5,049,968	85.92	24.00
Nagpur	DPR and Geotechnical survey	2,497,777	40.09	12.99
Lucknow	DPR and Geotechnical survey	2,901,474	34.00	
Mumbai		18,414,288		78.10
Kozhikode		2,030,519		
Trivandrum		1,687,406	48.00	

(Source: Compiled from various Comprehensive Mobility Plans, Detailed Project reports, Census of India, and Feasibility Reports.)

Table-3: Status of BRTS Construction in India

City	Status of Implementation	Population	Length of Corridor in KM	PT Share (%) Before	PT Share (%) After
Ahmedabad	Functioning	6,352,254	88.50	11.00	13.00
Pune	Functioning	5,049,968	112.00	12.00	19.00

Bhopal	Functioning	1,883,381	46.48	15.00	19.00
Indore	Functioning	2,167,447	98.56	7.00	13.00
Surat	Functioning	4,585,367	30.00	NA	NA
Rajkot	Functioning	1,390,933	63.50	20.00	NA
Vishakhapatnam	Functioning	1,730,320	38.50	42.00	45.00
Jaipur	Functioning	3,073,350	138.00	22.00	26.00

(Source: Compiled from various Comprehensive Mobility Plans, Detailed Project Reports, Census of India, and Feasibility Reports.)

Numerous urban areas have presented new current transport benefits after NUTP and JnNURM. Before the presentation, these cutting edge transport benefits, the State Road Transport Corporation administrations and private scaled down transports that were running in these urban communities were insufficient and wasteful. There are in excess of 30 urban areas that have presented current transport administrations. A large portion of these urban communities (90%) are those who didn't have transports for urban transportation prior.

The NUTP likewise perceived the need to have a committed Urban Transport Fund (UTF) at the city level for every one of the million or more urban areas and a State level UTF for the staying urban territories. The NUTP laid accentuation on the need to cut out new parking spots close to territories having open vehicle network to advance the "Recreation center and Ride" idea, rebuilding of leaving levy for recouping the genuine expense of land and revision in building local laws for making all the more parking spots in multi-storeyed structures (GoI, MoUD, 2013). Till 2012, the Government of India had affirmed subsidizing for 15260 buses for 64 JnNURM program urban areas. The NUTP imagined making Unified Metropolitan Transit Authorities in every Metropolitan zone for an organized vehicle improvement, and till date four urban areas have built up it. For creating an urban vehicle, states and

urban communities are told to make a committed Transport Development Fund(Kuriakose, 2013).

TRANSPORT SYSTEM IN AHMEDABAD

The transportation framework in Ahmedabad is subject to roadway frameworks. Many transportation modes make urban transport, and its modal share is shown in Table 4.

Table 4: Modal Share in Ahmedabad in 2011

Private	36%
Public transport	12%
Non-motorized modes	46%
Intermediate public transport, auto	6%
Total	100%

The portion of private modes (bikes and cars) in Ahmedabad is high. As Table 4 shows, 36% of the trips right now taken by means of private modes. They establish around 90% of the absolute enrolled vehicles in the city. The private vehicle populace remains at 1.77 million (263,000 autos and 1.5 million bikes). The two modes are developing at 8% per annum, and four-wheelers have dramatically increased during the most recent decade. Bikes are the most well-known mode, representing 33% of all excursions in the city. This is one of the reasons for clog at the focal point of the city. Public vehicles in Ahmedabad comprises of AMTS and BRTS. As Table 4 shows, this records for just 12% of all excursions in the city. There are 827 means of transport with 174 courses and 1,688 bus stations. The complete system is 550 km long and has a ridership of 600,000 travelers every day. AMTS transport stops are situated on the kerbsides of streets and are a blend of signs and impermanent structures.

BRTS is handled by Ahmedabad Janmarg Limited, which is enlisted under the Companies Act 1956 and is a backup of the Ahmedabad Municipal Corporation. BRTS started in 2009 and right now covers 86 km with 131 transport stations. The framework capacities with isolated transport paths, middle transport stations, level loading up and landing, high recurrence (two to five minutes), low passages, and a constant traveler data framework. It has a ridership of 125,000 travelers every

day. BRTS stations have central areas, high plinths (900 mm), at-grade draws near, off-load up ticketing offices, and malleable wires around their outside. The majority of these stations are situated close to intersections and have synchronized sign staging for people on foot. Travelers purchase their ticket at a counter, check the QR code at the entryway of a bus station, and take a transport. As Table 1 shows, it represents 6% of all outings in Ahmedabad. Their populace is developing at 11% per annum. They are required to assume a job as a feeder for the open vehicle(Hiraide et al., 2019).

3. CONCLUSIONS

Whatever the upgrades occurred in broad public transport in Indian urban areas, is, for the most part, a million bus transport city marvels. From a useful point of view, the fracture of coordination administration of urban administration is truly devastating the advancement of the execution process. From studies, it is known that the role of public transport in meeting the demand for travel is not improved much. A portion of the arrangements at the Central Government itself acts against the motivation behind the NUTP 2006 and support private vehicle proprietorship. The absence of implementation is a crucial bottleneck. The viability of extreme land-use guidelines on confining urban spread, which go about as the obstacle in the accomplishment of the open vehicle framework, should be authorized stringently. Right now, little thought is given to the sparking valuing mechanisms. In each regional government, foundations are welcoming vehicle clients by giving free parking spots. There is a need to demonstrate progressively political will to actualize elusive travel request the executives' capacities, similar to clog pricing(Swamy& Sinha, 2014).

The expense of the BRTS in Ahmedabad is too high to even think about improving the openness of low-pay family units. It is higher than the expense of the AMTS or even shared automobiles. Giving a public vehicle framework may not realize gender orientation equity if the expenses of the new framework are not remembered. The best alternative at the present degree of wages in Indian urban communities is to guarantee openness to

opportunities for the urban poor (particularly ladies) through better land-use arranging, which gives work and social assistance in nearness to more unfortunate habitations, and through asylum arrangements that advance in situ upgrades. Something else, improving access to the public vehicle for low-salary gatherings, would mean proceeding with open vehicle endowments for certain years to come. Authoritative stopping guidelines can add to these sponsorships on the off chance that they are arranged well. The urban poor can be the devoted clients of the BRTS on the off chance that they are perceived and remembered for it by reconsidering the admission framework (Mahadevia et al., 2013).

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