URBAN MOBILITY REGULATORY REFORMS IN INDIA

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MP Ensystems Advisory Private Limited

Shakti Sustainable Energy Foundation

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About MP Ensystems

MP Ensystems Advisory Private Limited (www.mpensystems.com) is a niche energy and environmental sector consultancy and advisory firm providing a bridge between policy-making and clean energy project implementation

About Shakti Sustainable Energy Foundation

Shakti Sustainable Energy Foundation works to strengthen the energy security of India by aiding the design and implementation of policies that support renewable energy, energy efficiency and sustainable transport solutions.

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Contents

Figures

Tables

Executive Summary

There are a number of regulatory challenges that prevent Indian cities from having sustainable mobility services. Different aspects of urban mobility are governed by different agencies at the central, state and city level. The absence of an overarching legislative framework, along with multiple institutions with overlapping jurisdictions and lacking coordination leads to distortions in service provision, financing, implementation, and pricing of mobility.

A review of institutions, laws and policies at the centre, and in five cities- Pune, Mumbai, Bangalore, Panaji, Chandigarh led to the following findings: There are a number of laws at the centre and state related to vehicles, licensing, roads and railways. However, there are no laws that comprehensively cover urban mobility. As a result, there is no mandate to focus on meeting mobility demand through sustainable means, integrating mass transit and non-motorized transport. There have been policies that promote sustainable urban mobility, the most recent being the National Urban Transport Policy, 2014, which recommended the establishment of a city-based Unified Metropolitan Transport Authorities (UMTA). In Bangalore, UMTA has been set up under the State Department of Urban Land Transport but it is not clear yet as to whether it will be open to public participation, whether there will be a focus on non-motorized mobility and whether it will be able to work with planning agencies such as Bangalore Development Authority and Bangalore Metropolitan Region Development Authority.

Paris, London, Hong Kong and New Zealand all have urban transport agencies or regulators. Most of the cities had a single agency, empowered, locally governed and receiving Government funds. Some agencies acted as regulators, while simultaneously providing transport services. In most cases, the regulator was appointed by and reported to the local government. None of the cities had an independent statutory body set up to regulate mobility. Most of the agencies studied had legislative backing for their functioning. Transportation regulators and service providers had direct or indirect inputs into the planning and land use process. All the cities provided some form of subsidy or Viability Gap Funding to public transport operators. Tariffs were set mainly by adhering to a rule or formula related to inflation. Other means of tariff setting include public surveys, investigation or reports by a special committee.

The institutions, roles, power of the regulator, jurisdiction, consumer redressal and appellate process in other infrastructure sectors- power, telecom and ports can be used to provide inputs to the mobility sector. One potential regulatory reform is for states to pass a Sustainable Urban Mobility Law that includes a Sustainable Urban Mobility Policy that is to be updated regularly, an independent regulator at the city level and an institutional framework that calls for interaction between the regulator and urban planning agencies. In addition, the Government will need to set up a technical body, backed by law, to issue mandatory standards and conduct research on urban mobility in India. The law and the institutional set up need to be designed to ensure independence of the regulator, public participation, transparency, a dispute settlement mechanism and an appellate authority.

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We would also like to thank the teams at the following institutions for their responses to our interviews: Transport Commissioner for Mumbai, Pune Municipal Corporation, Municipal Corporation for Greater Mumbai, Imagine Panaji Smart City Development Limited, Transport for London and Hong Kong Commissioner for Transport.

The views expressed in this report do not necessarily reflect the views of the individuals and organisations listed above.

Abbreviations

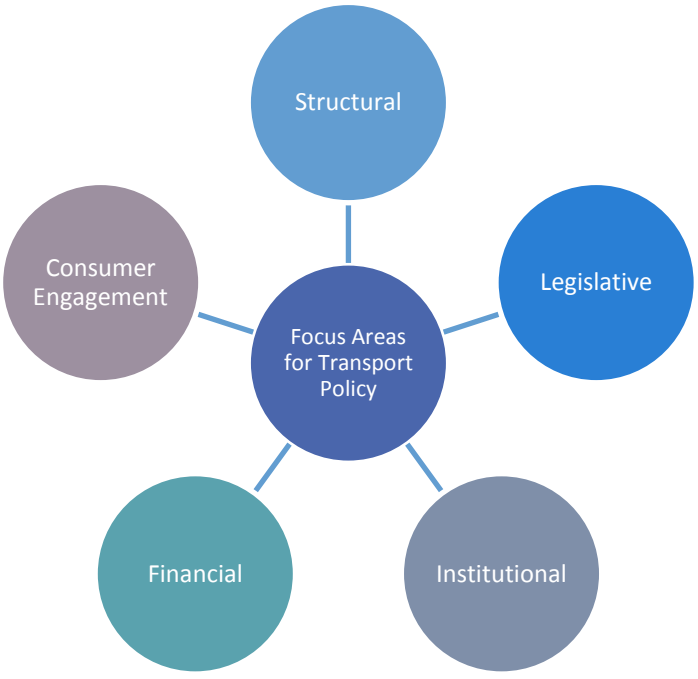
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BBMP	Bruhat Bengaluru Mahanagara Palike
BDA	Bangalore Development Agency
BEST	Brihanmumbai Electric Supply and Transport Undertaking
BMRDA	Bangalore Metropolitan Region Development Agency
DHI	Department of Heavy Industries
DULT	Department of Urban Land Transportation
FAME	Faster Adoption and Manufacturing of (Hybrid) & Electric Vehicles
GHG	Greenhouse gas
IEA	International Energy Agency
INDC	Intended Nationally Determined Contribution
IPSCDL	Imagine Panaji Smart City Development Limited
JnNURM	Jawaharlal Nehru National Urban Renewal Mission
MCGM	Municipal Council of Greater Mumbai
MMRDA	Mumbai Metropolitan Region Development Agency
MoRTH	Ministry of Road Transport and Highways
MoUD	Ministry of Urban Development
PMC	Pune Municipal Corporation
PMPL	Pune Mahanagar Parivahan Mahamandal Ltd.
PMRDA	Pune Metropolitan Region Development Agency
TOD	Transit Oriented Development
UMTA	Urban Metropolitan Transport Authority
UTF	Urban Transport Fund

1. Introduction

Sustainable urban mobility in India faces a number of technological and financial challenges. However, these challenges are exacerbated by regulatory challenges that are unique to the sector. Different aspects of urban transport are governed by different agencies at central, state and city level. While having multiple agencies to govern aspects of mobility, including public transport, air quality, planning etc. is inevitable and is constitutionally mandated, these multiple institutions and centres of power do not function under "a set of ordered rules" (Ostrom 2009). The lack of an overarching legislative framework for mobility leads to distortions in financing, implementation, and pricing.

Policy analysis of the urban mobility sector focuses on the assessment of the following five aspects described below:

Figure 1 Focus Areas for Mobility Policy



Source: MP Ensystems Research, 2018

1. Structural factors- Includes the agencies at the centre, state and city level.
2. Legislative aspects – There are laws and rules at the central and state levels governing different aspects of urban transport
3. Institutional aspects- Institutional factors in the transportation sector include planning, resource allocation, distribution of power, authority between levels of governments and

other actors and coordination among multiple actors and social and organizational culture (UNESCAP, 2014)

4. Financial aspects- Including traditional sources such as revenue, subsidies, taxes; as well as advertising, monetizing land holdings and new sources of revenue such as the proposed Urban Transport Fund (UTF) as a source of finance for Urban Metropolitan Transport Authorities (UMTA).
5. Consumer perspective- Consumer requirements are determined through stakeholder mapping, holding public forums, and conducting surveys.

Discussions on urban transportation usually centre around 5 factors that include air-quality, choices between public, private and shared mobility, motorized against non-motorized transportation, role of transportation in urban policies and setting up of policies, finance (subsidies, fare fixations) detailed below.

1. Environmental impact
2. Public, private and shared transport
3. Motorized vs. Non-motorized transport
4. Urban Planning and Transport
5. Finance (Subsidies and fare fixation)

Working on all five of these elements is expected to lead to a paradigm shift towards an urban mobility legislation and authority.

The report is structured as follows: Introduction, followed by a description of the mobility regulatory environment in India and in the cities of Pune, Mumbai, Bangalore, Chandigarh and Panaji. The following section discusses institutional barriers to sustainable mobility, proposed solutions and metrics to evaluate the efficacy of the proposed solutions. The next section has case studies of international cities and regions- Paris, London, Hong Kong and New Zealand, analyzing the mobility regulatory environment. The following section evaluates regulatory reform in other infrastructure sectors in India- power, telecom and ports, and proposes structures that can be adopted in the mobility sector. In conclusion, the way forward is described through legislative and regulatory reform for urban mobility in India in the form of a Sustainable Urban Mobility Act, with a city-based regulator.

2. Mobility Regulatory Environment in India

This section covers the regulatory environment for mobility at the center and at the city level. The following criteria were used to ensure that that a diverse range of cities was selected:

City size	Variety of transportation governance institutions
Population density	Public transport agencies
Regional air quality	State Capitals and major cities
Multiple and varied modes of transport in the city	Interaction between state and urban local bodies
Radial or linear development of city	Active dialogue between government and civil society
Geographical variation	Availability of transport data

Based on these criteria, the following five regions were selected:

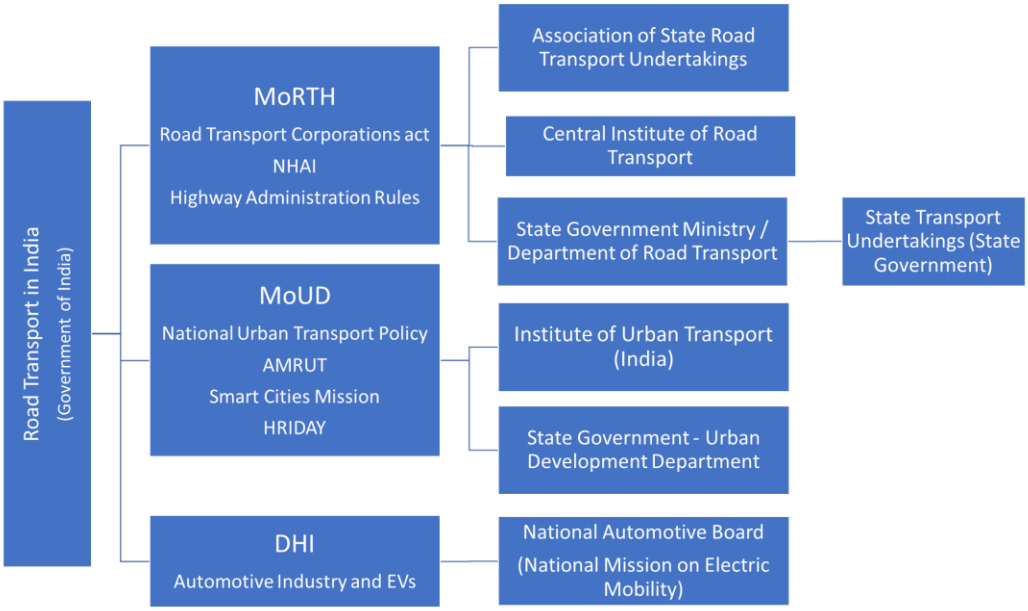
- Mumbai Metropolitan Region
- Pune Metropolitan Region
- Bangalore Metropolitan Region
- Panaji
- Chandigarh Capital Region- which includes Chandigarh, Panchkula (Haryana) and Mohali (Punjab)

Research for this task included creating an exhaustive list of transport government agencies, laws, rules and policies, at the state and city level for the selected cities, in Annexure 1 based on publicly available data and interviews with relevant state and city authorities.

2.1 Regulatory environment at Centre

At the Central Government level, the figure below includes the institutions that play a major role in urban transportation.

Figure 2 Structure of Urban Transport Regulation in India



Source: MP Ensystems Research, 2018

Table 1 below lists the major laws and policies related to urban transport in India. Most facets of motorized urban road transport in India are governed by the Motor Vehicles Act, 1988. A draft Motor Vehicles Amendment Act, 2016 is currently under discussion. While the draft contains elements to promote road safety, there is no mention of non-motorized mobility under the Act and there is no other act that comprehensively deals with the issues discussed earlier -public, private, shared mobility, environmental impact etc.

The Acts -enacted by Parliament, which the government is bound to follow- are listed below, followed by policies, which are viewpoints or objectives, which the government is not bound to follow.

Table 1 Major Laws and Policies related to Urban Transport in India

Act/Rule/Policy	Key Highlights
Acts and Rules	
The Road Transport Corporations Act, 1950	Establishment of Corporation, duties and responsibilities of office bearers, duties and powers of corporations, financing and budget, power to make rules and regulations
National Highways Act, 1956	Land Acquisition, toll collection, Numbering the highways
National Highways Rules, 1957	General Rules for Administration of Highways
Metro Railways (Construction of Works) Act 1978	Administration, land acquisition, construction, inspection of Metro
The Motor Vehicles Act, 1988	Licensing of Drivers and Conductors, Registration of Motor Vehicles, Permits, Control of Traffic, Insurance, claims.
The Central Motors Vehicles Rules, 1989	
The National Highways Authority of India Act, 1988	Formation of the Authority, its functions, finance and auditing
The Road Regulation Rules, 1989	Rules to be followed by the driver
National Highways (Rate of Fee) Rules, 1997	Toll calculation for bridges and 2 to 4 lane converted highways
The Control of National Highways (Land and Traffic) Act, 2002	Land ownership, access control, availability of public facilities at the highway
Metro Railways (Operation and Maintenance) Act 2002	Opening the Metro for Public, General Administration, fare fixation

Act/Rule/Policy	Key Highlights
Metro Fare Fixation Rules 2003	Procedure for fixation of the fare of Metro Rail (Procedure to be followed by Fare Fixation committee) Metro Rail Administration has to provide the data on fixed costs, variable costs, ridership, interest to be paid on national and international loans, guaranteed dividends, etc. make necessary recommendations to the committee
Highways Administration Rules 2004	Exercise of Powers and Functions by the Highway administrations and maintenance of records
National Highways Fee (Determination of Rates and Collection) Rules, 2008	Formulae for calculating toll and rules regarding over-sized vehicles
Metro Railways (Amendment) Act 2009	Amendments in various sections of various Acts related to Metros
The National Highways Authority of India (Amendment) Act, 2013	Amendment in the organizational structure
Metro Railways (Operation and Maintenance) Rules 2013	Opening the Metro for Public, General Administration, fare fixation
Metro Railways (Carriage and Ticket) Rules 2014	Permissible luggage and list of prohibited material
Metro Railways General (Amendment) Rules 2015	Amendment in signaling and traffic control
Policies and Missions	
Jawaharlal Nehru National Urban Renewal mission (JnNURM) 2005-2014	Creating economically productive, efficient, equitable and responsive cities by a strategy of upgrading the social and economic infrastructure in cities, provision of Basic Services to Urban Poor (BSUP) and wide-ranging urban sector reforms to strengthen municipal governance in accordance with the 74th Constitutional Amendment Act, 1992.
National Urban Transport Policy (NUTP) 2006	Safe, affordable, quick, comfortable, reliable and sustainable urban transport systems, establishment of quality focused multi-modal public transport systems

Act/Rule/Policy	Key Highlights
	that are well integrated, providing seamless travel across modes, land use transport integration, introducing intelligent transport systems for traffic management etc.
National Electric Mobility Mission Plan 2020, 2012	Aims to achieve national fuel security by promoting hybrid and electric vehicles in the country. It has set an ambitious target of 6-7 million sales of hybrid and electric vehicles year on year from 2020 onwards.
Atal Mission for Rejuvenation and Urban Transformation (launched in 2015)	Providing basic services (e.g. water supply, sewerage, urban transport) to households and build amenities in cities which will improve the quality of life for all. Reduce pollution by switching to public transport or constructing facilities for non-motorized transport (e.g. walking and cycling). Sidewalks, foot over bridges, nonmotorized transport, buses, BRTS, multilevel parking, waterways and ferry vessels.
Smart Cities Mission (launched in 2015)	The core infrastructure elements in a Smart City would include: efficient urban mobility and public transport, promoting a variety of transport options — Transit Oriented Development (TOD), and last mile para-transport connectivity.
Heritage City Development and Augmentation Yojana (launched in 2015)	To undertake strategic and planned development of heritage cities aiming at improvement in overall quality of life with specific focus on sanitation, security, tourism, heritage revitalization and livelihoods retaining the city's cultural identity.
National Urban Transport Policy, 2014 (Proposed revision in the NUTP 2006)	Plan for people rather than vehicles by providing sustainable mobility and accessibility to all citizens to jobs, education, social services and recreation at affordable cost and within reasonable time.
National Transit Oriented Development Policy, 2017	TOD integrates land use and transport planning and aims to develop planned sustainable urban growth centers, having walkable and livable communes with high density mixed land-use.

Act/Rule/Policy	Key Highlights
Metro Rail Policy, 2017	Options of Mass Rapid Transit Systems (MRTS), planning and implementation of metro rail projects, options for central assistance for metro rail

Source: MP Ensystems Research, 2018

2.2 Mobility Regulatory Environment in five cities

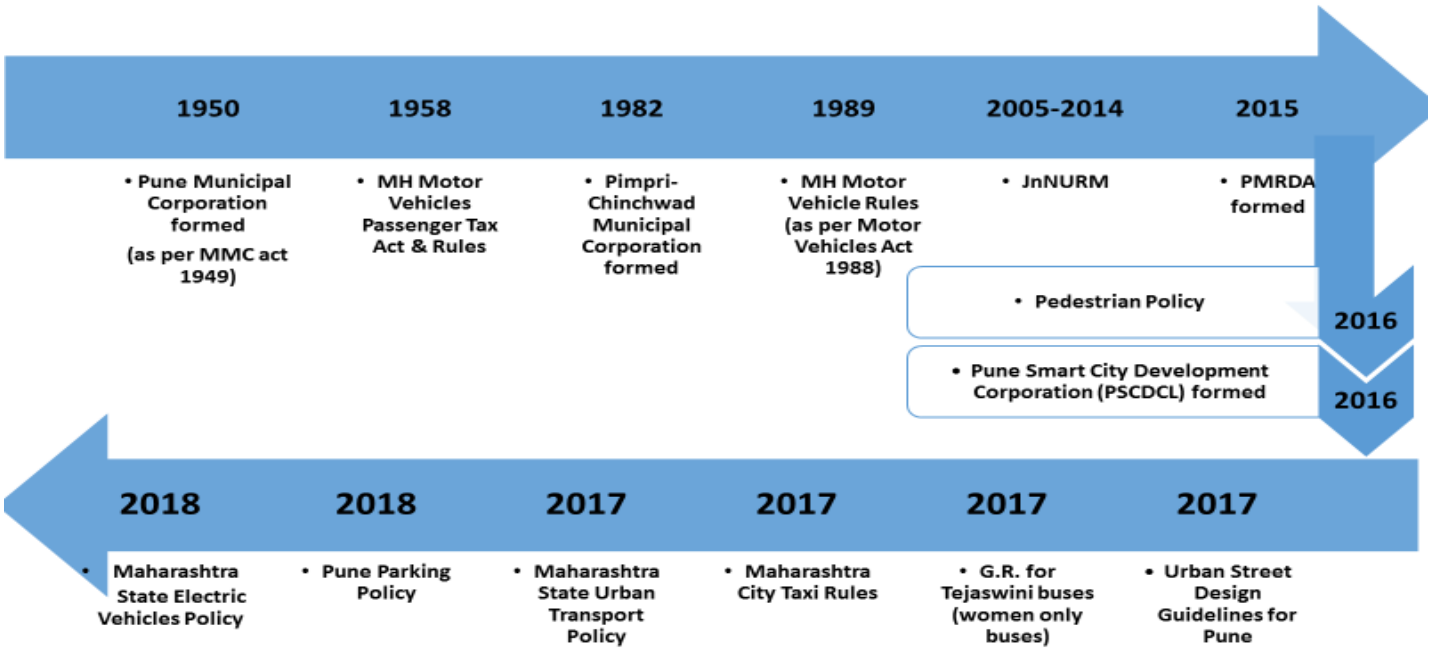
The sections below describe the mobility regulatory structure and attempts at setting up an urban mobility regulatory at the city level in five Indian cities- Pune, Mumbai, Bangalore, Panaji and Chandigarh.

2.2.1 Regulatory Environment in Pune

In 2018, Pune's population touched 3.5 million and the number of registered vehicles for the city crossed 3.6 million (India Today 2018). While Pune historically has had a large number of two-wheelers on the road, recent additions to the mobility sector include - shared mobility, Bus Rapid Transit (BRT), cycle shares and construction of the metro. Pune was designated Lighthouse City in 2018, under the smart City program, to act as a demonstration of urban mobility transformation.

The figure below shows the timelines of major acts, rules and policies on urban transportation in Pune. A complete list of laws and policies are in Annexure 1.

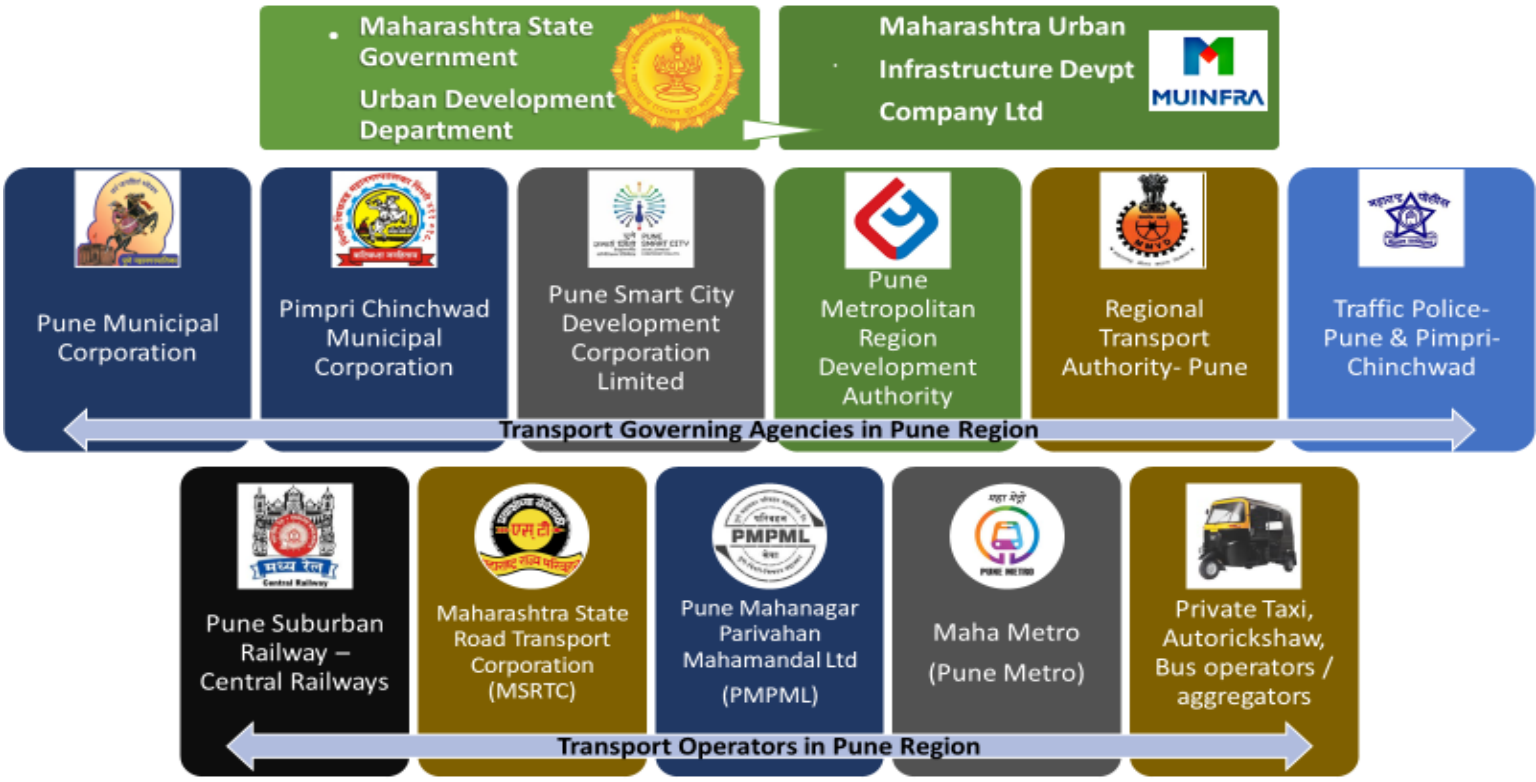
Figure 3 Timeline of Major Acts and Policies in Urban Mobility in Pune



Source: MP Ensystems Research, 2018

The chart below lists the major organisations involved in the mobility sector in Pune. A complete list is in Annexure 2.

Figure 4 Organisations and Agencies in Urban Mobility in Pune



Source: MP Ensystems Research, 2018

	Central Government (Indian Railways)		Public Private Partnership
	Urban Development Department- State Govt		Urban Local Body
	Transport Department- State Govt		Jointly under Central Govt and State Govt.
	Home Department- State Govt		

2.2.2 Regulatory Environment in Mumbai

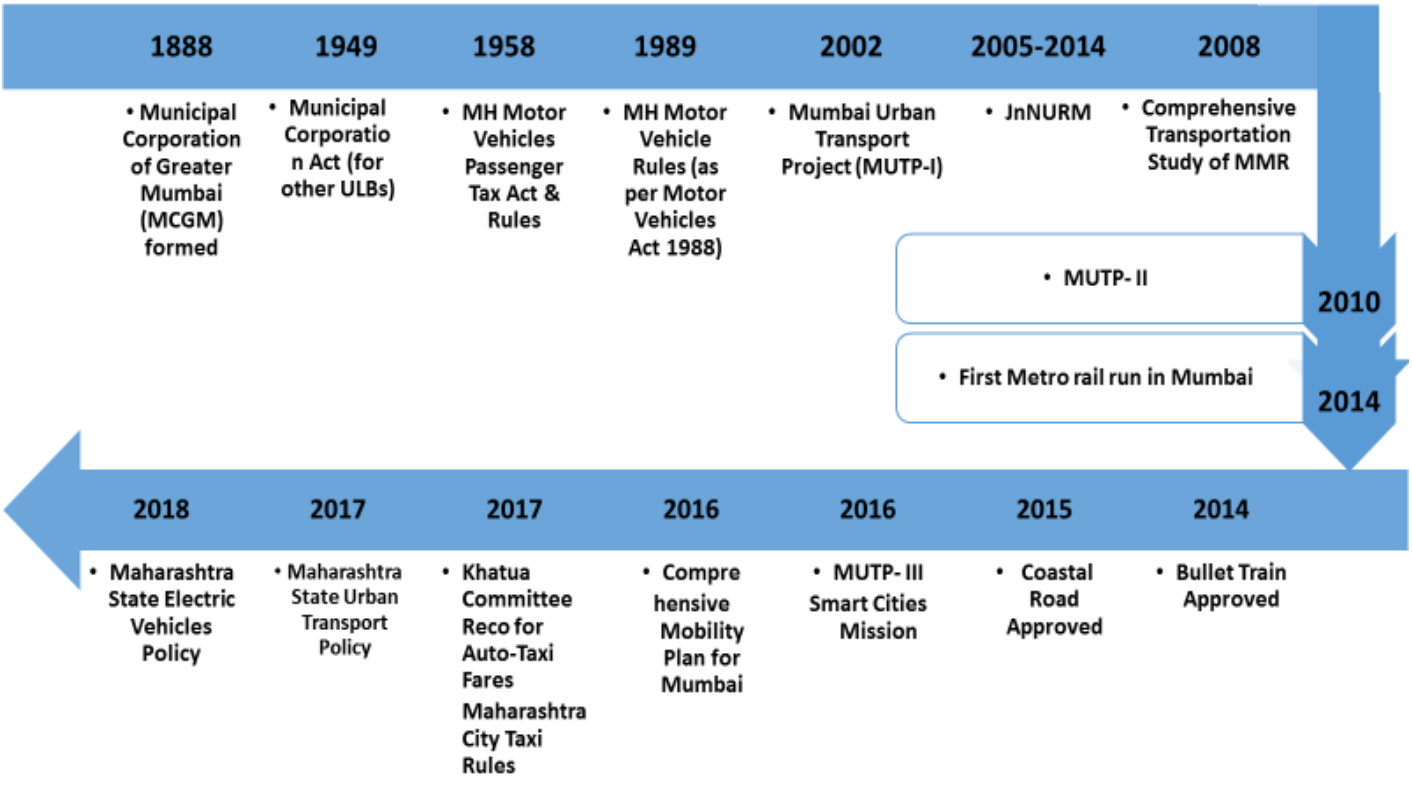
Mumbai city has a population of more than 12.4 million. Its modes of transport include local trains, metro, buses, monorail, taxis, rickshaws, shared mobility and non-motorized transport. A 2009 survey found that more than half of all trips in Mumbai were made using public transport (Embarq

2009), while a recent study found that during rush hour, pedestrians outnumbered commuters (Mumbai Live 2018) .

A number of regulatory agencies have been set up over the years in Mumbai to coordinate between existing agencies, including setting up a Unified Metropolitan Transport Agency for the city in 2008. Mumbai's UMTA set up a special cell under Mumbai Metropolitan Regional Development Agency (MMRDA) in 2011 but due to a lack of regulatory backing, the cell's activities came to a halt. In 2016 the Maharashtra government proposed bringing back UMTA and setting up an Urban Transport Fund under MMRDA, mainly to finance large infrastructure projects (Hindustan Times 2016). However, none of these efforts have so far led to a comprehensive effort to improve mobility services in Mumbai.

The figure below shows the timelines of major acts, rules and policies on urban transportation in Mumbai. A complete list of laws and policies is in Annexure 1.

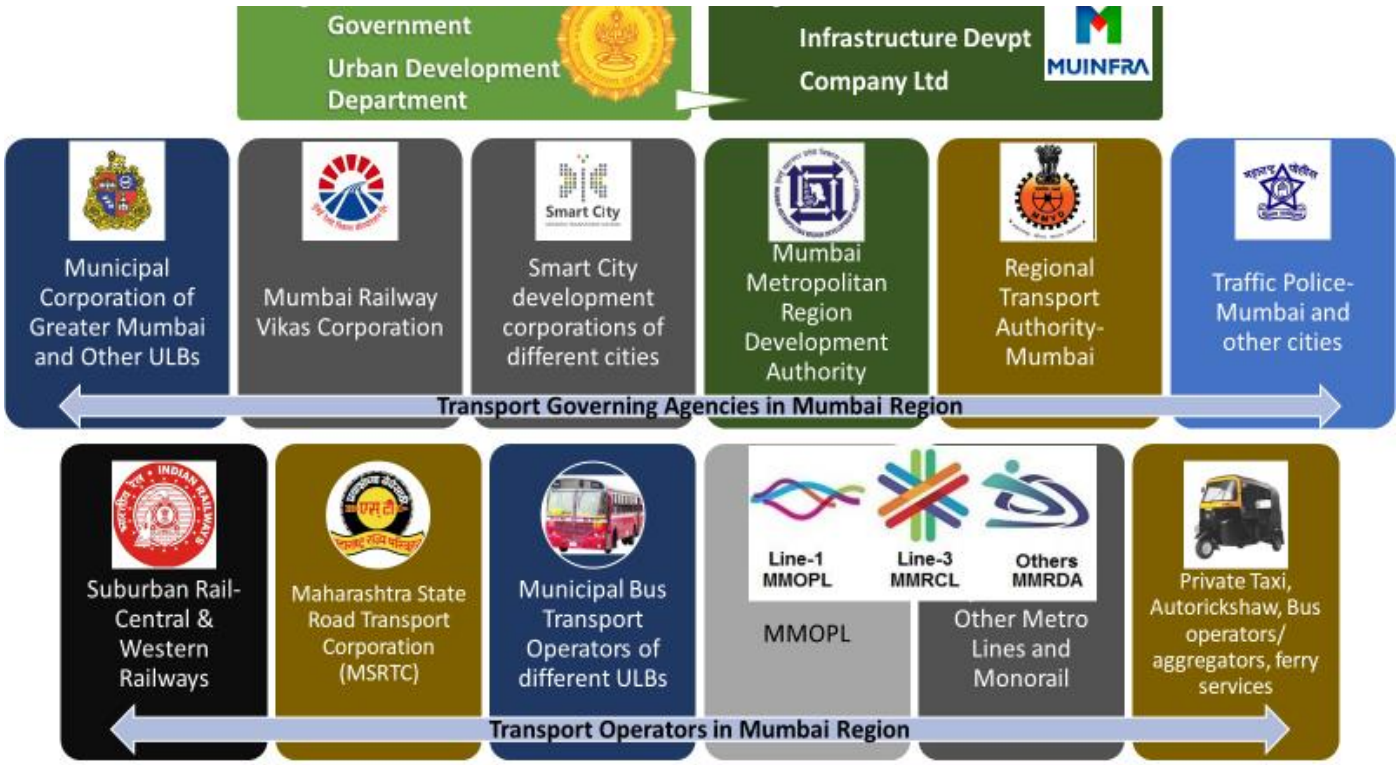
Figure 5 Timeline of Major Acts and Policies in Urban Mobility in Mumbai



Source: MP Ensystems Research, 2018

The chart below lists the major organisations involved in the mobility sector in Mumbai. A complete list is in Annexure 2.

Figure 6 Organisations and Agencies in Urban Mobility in Mumbai



Source: MP Ensystems Research, 2018

2.2.3 Regulatory Environment in Bangalore

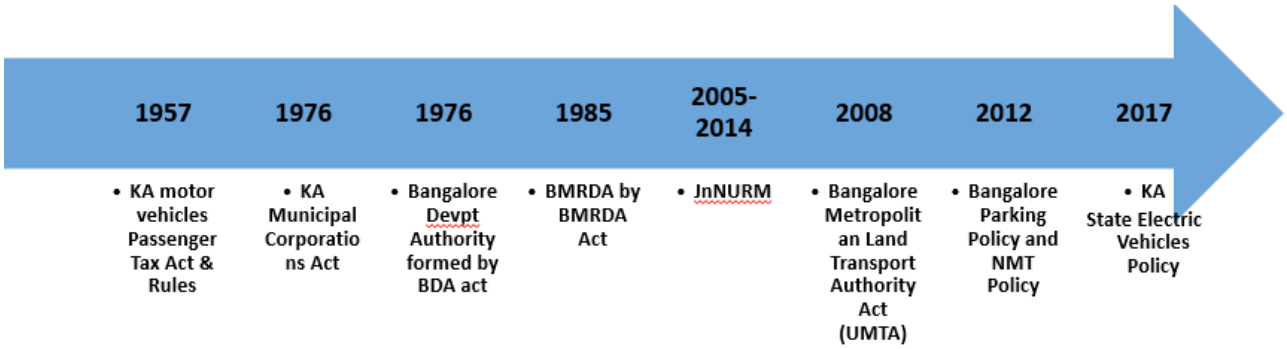
Bangalore city has a population of over 10 million and has registered over 7 million vehicles (Times of India 2017). Modes of transport in Bangalore include- private vehicles, private and public buses, Metro, taxis- licensed as well as app-based, autorickshaws, scooter and bicycle shares.

Karnataka is one of the states that has set up the Directorate of Urban Land Transport (DULT) in 2007 soon after the NUTP came into force in 2006. DULT was set up to coordinate planning and implementation of urban transport in all cities in the state. In 2008, the Bangalore Metropolitan Land Transport Authority (BMLTA) was set up as a committee under the aegis of DULT, with

members of other Government departments. However, BMLTA[1] lacked financial and legislative power and after an initial push, meetings stopped. The Karnataka government has once again announced the creation of a central regulatory authority for Bangalore- Unified Metropolitan Transport Authority (Business Standard 2018).

The figure below shows the timelines of major acts, rules and policies on urban transportation in Bangalore. A complete list of laws and policies are in Annexure 1.

Figure 7 Timeline of Major Acts and Policies in Urban Mobility in Bangalore

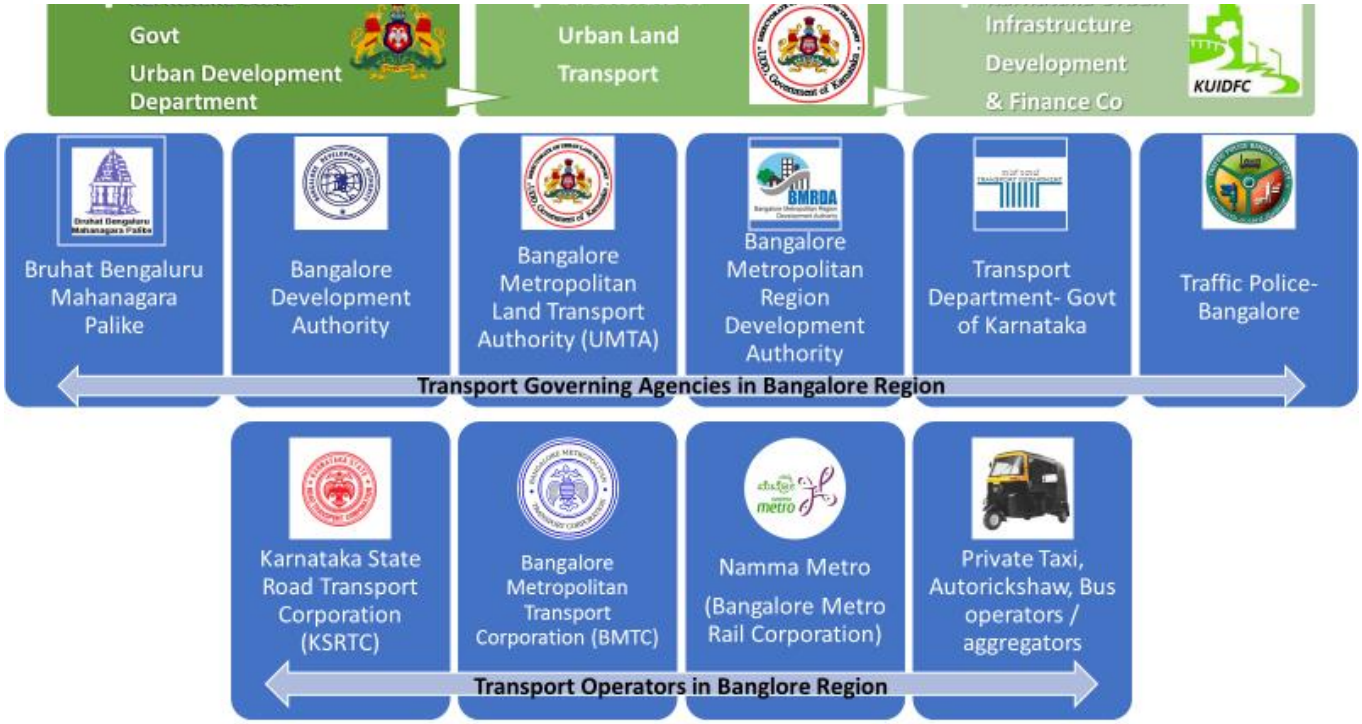


Source: MP Ensystems Research, 2018

The chart below lists the major organisations involved in the mobility sector in Bangalore. A complete list is in Annexure 2.

[1] BMLTA was modelled on Singapore's Land Transport Authority. However, LTA in Singapore was the land planning agency, while in Bangalore, the Bangalore Development Agency held this power.

Figure 8 Organisations and Agencies in Urban Mobility in Bangalore



Source: MP Ensystems Research, 2018

2.2.4 Regulatory Environment in Panaji

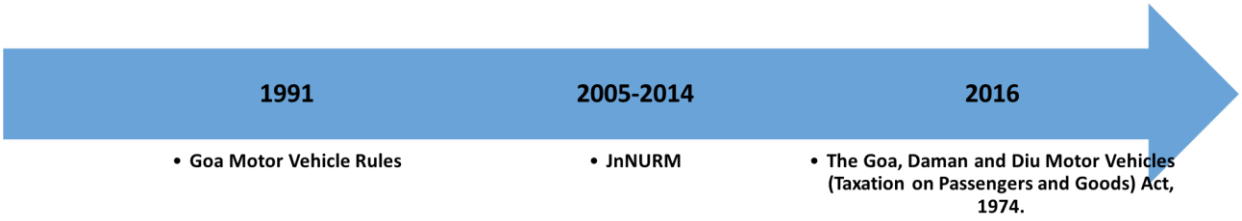
Panaji, the capital of India's smallest state has a population of 114,000. Annually the city registers approximately 70,000 vehicles; the rate of registering vehicles has not grown, and the rate of growth in some categories such as taxis have fallen (Department of Transport, Goa 2018). Currently, Panaji has private buses, taxis, motorcycle taxis and ferries providing mobility services. While cars and scooters are available on hire, there are is only one app-based on demand car sharing service run by the Government – Goa Miles. Kadamba Transport Corporation – the state-owned bus transport company has a terminal in Panaji, but only provides inter city services.

Panaji has been designated a Smart City and Imagine Panaji Smart City Development Ltd (IPSCDL) has been set up as a Special Purpose Vehicle to implement projects. IPSCDL is in the process of conducting a survey to develop a comprehensive masterplan for transport in Goa and a parking masterplan for Panaji. They are in the planning stage of developing infrastructure for parts of the city, such as improving road surface and building jetties. In meetings with IPSCDL, officials have

talked about promoting electric vehicles, charging infrastructure, cycle lanes and pedestrian zones. However, the term of IPSCDL's SPV is five years and various elements of planning such as public inputs, coordination between the municipality and state government agencies, financing, maintenance etc. are not yet known.

The figure below shows the timelines of major acts, rules and policies on urban transportation in Panaji. A complete list of laws and policies are in Annexure 1.

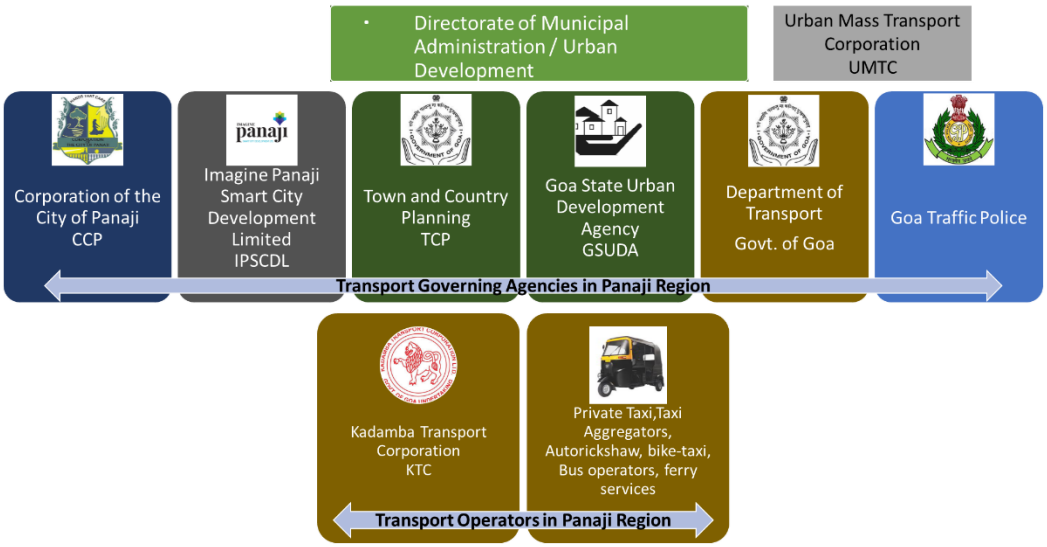
Figure 9 Timeline of Major Acts and Policies in Urban Mobility in Panaji



Source: MP Ensystems Research, 2018

The figure below has the main organisations and agencies in Panaji. (A complete list of the organisations and their role is in Annexure 2).

Figure 10 Organisations and Agencies in Urban Mobility in Panaji



Source: MP Ensystems Research, 2018

2.2.5 Regulatory Environment in Chandigarh

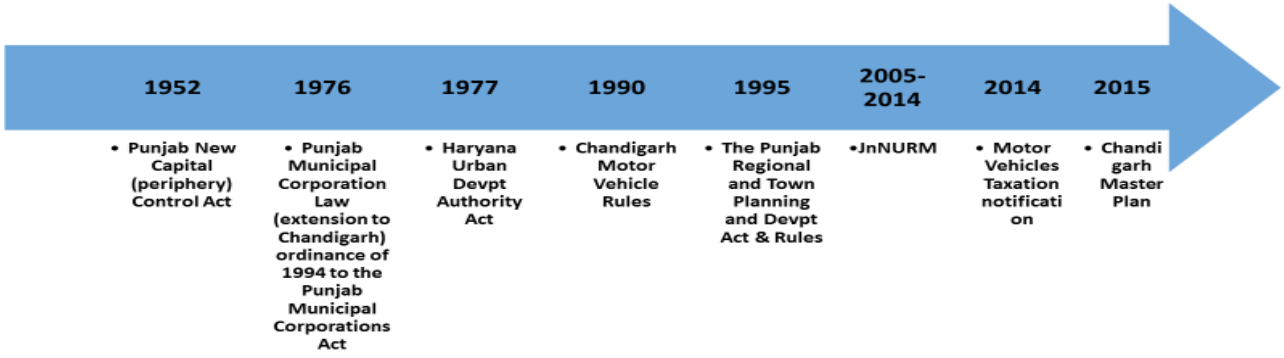
The Chandigarh Capital Region consists of the Union Territory of Chandigarh, the city of Mohali in Punjab and the city of Panchkula in Haryana. The region has a population of approximately 1.1 million and has registered 1.1 million vehicles until the end of 2018 (Indian Express 2014).

The CCR region has a public bus service run by Chandigarh Transport Undertaking. Plans to build a Metro have been scrapped due to financial unviability and officials are considering a monorail project. In 1997 too, Chandigarh had proposed and then scrapped plans for a monorail.

Given the situation of Chandigarh- Union Territory and capital of two states, there is a need for an agency to coordinate between the transport and planning agencies of both states, however we did not find evidence of efforts to create such an agency.

The figure below shows the timelines of major acts, rules and policies on urban transportation in Chandigarh. A complete list of laws and policies are in Annexure 1.

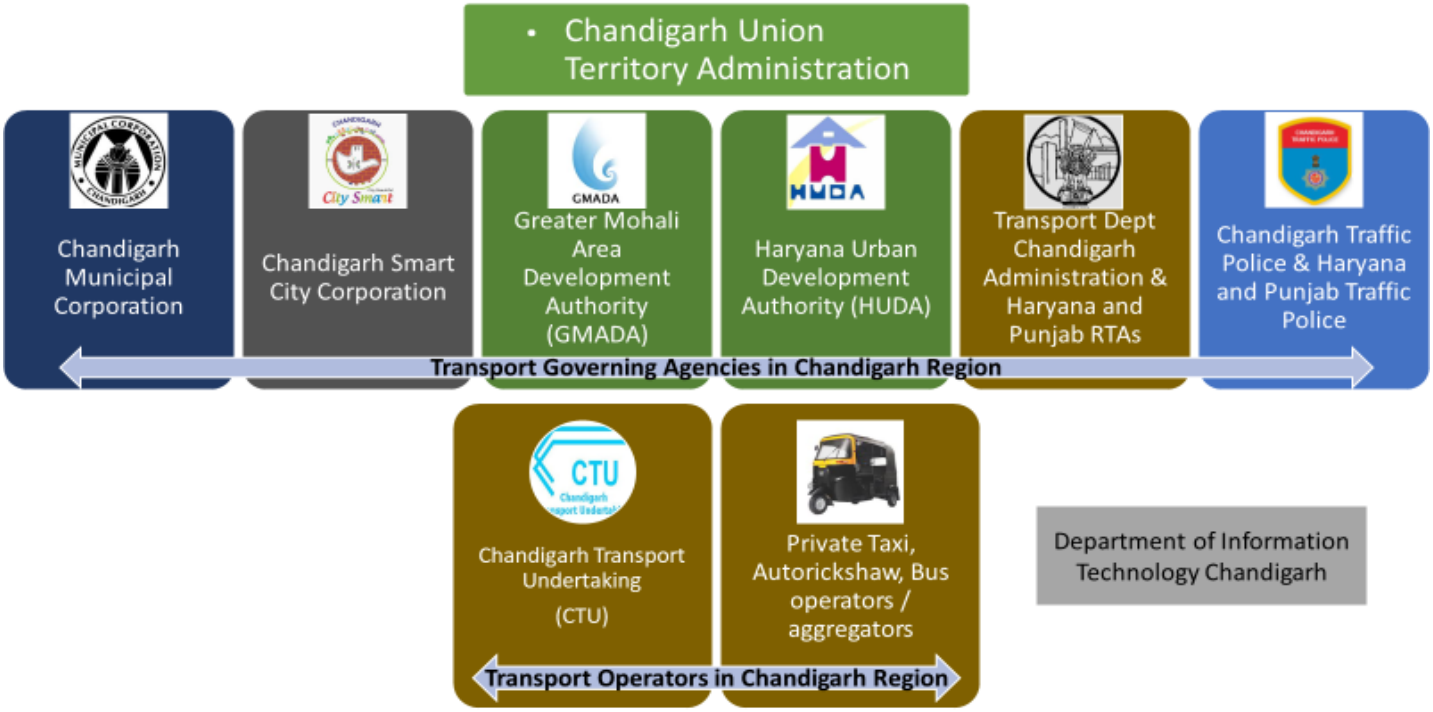
Figure 11 Timeline of Major Acts and Policies in Urban Mobility in Chandigarh



Source: MP Ensystems Research, 2018

The figure below has the main organisations and agencies in Chandigarh (A complete list of the organisations and their role is in Annexure 2).

Figure 12 Organisations and Agencies in Urban Mobility in Chandigarh



Source: MP Ensystems Research, 2018

2.2.6 Summary of Regulatory Environment in Selected Cities

A summary of observations from the 5 cities is below:

1. The size and complexity of the organisations varies across cities. For instance, Panaji, with a population of 114,000 (Census 2011) has a limited provision of intra and inter-city buses, supplemented by para transit options such as rickshaws and motorcycle pilots. The city's municipal corporation provides inputs into routes. In contrast, Mumbai (population 1,840,000,000) has several agencies that provide public transport, including Central and Western Railways, BEST Undertaking, Municipal Transport provided by Thane, Navi Mumbai, Kalyan-Dombivli, Mumbai Rail Vikas Corporation and a variety of private operators providing various forms of transport.

2. The jurisdiction of state governments also plays a role in urban mobility. In the case of the Chandigarh Capital Region, 3 different entities provide transport facilities- Chandigarh Transport Undertaking, Mohali Municipal Corporation (city bus approved but operations have not begun) and Haryana Roadways.
3. Pune, Mumbai and Bangalore have municipal authorities as well as Regional Development Authorities (PMRDA, MMRDA, BMRDA respectively). These agencies have greater access to funds (e.g. JICA funding for the Mumbai metro), as well as greater expertise in urban planning. However, the responsibility for implementation can get fragmented amongst institutions and priorities can get skewed towards big-ticket infrastructure solutions.
4. At the state level, Karnataka is the first state to set up the Directorate of Urban Land Transport (DULT) to coordinate planning and implementation of Urban Transport projects and programs in cities in the state. DULT is expected to provide an overarching framework, to cities. Bangalore city has set up a Unified Metropolitan Transport Authority (UMTA) as an umbrella body in the city.
5. However, it is not clear yet whether agencies such as DULT and UMTA will be open to public participation, whether there will be a focus on non-motorized mobility and whether this new organisational set up will be able to prevail over existing agencies such as Bangalore Development Authority (BDA) and Bruhat Bengaluru Mahanagar Palike (BBMP).
6. Other cities such as Pune and Mumbai have set up committees and special cells to work as UMTA. However, none of these efforts have the backing of a law, only Government Resolutions or policies promoting them.
7. MMRDA has procured electric (hybrid) buses and BEST has launched services of these buses on certain routes. In Goa, Kadamba Transport Corporation has procured electric buses and after running a successful trial, has now reached out to the central government for funds under AMRUT to procure more such electric buses. Apart from these ad-hoc measures, the municipal corporations of both cities have not yet unveiled a plan on acquiring and maintaining these buses, expected financial and environmental impact- including impact on the grid.
8. Bus Rapid Transit services have been introduced in these cities more than 10 years ago, e.g. Pune launched its first BRT service in 2006. A number of routes are being currently added, however even now all the features that enable BRT to be successful are not in place.
9. Similarly, there are adhoc policies at the city level that promote cycling and other forms of non-motorized transport.
10. While the NUTP promotes movement of people rather than vehicles, there is no law, rule or government agency charged with planning, promoting and regulating multi modal mobility solutions in any of these cities.

3. Barriers to Sustainable Mobility and a Proposed Solution

3.1 Barriers to Sustainable Transportation

A list of the major categories of factors that impede sustainable transportation is in Table 2 below.

Table 2: Barriers for sustainable transport

Barriers	Description
Physical	• No compatibility in databases of urban rail/bus/metro transportation • No linkage in ticketing, pricing • Limited availability of alternative technology (e.g. e-vehicles and charging infrastructure) • Weather and geographic features that deter non-motorized transport
Resources	• Inadequate financial resources • Lack of skilled human resources in sustainable transport planning • Insufficient information on- mobility needs and current usage, new technologies and their impact,
Legal and Regulatory	• Multiple authorities and jurisdictions, at city, state and central level • Lack of integration between land use and transportation planning • Difficulty in setting a price that meets the goals of internalising externalities, affordability, economic viability • Conflict between goal of setting low prices for affordable transport and private agencies for economically viable service provision • Conflict between public and private sectors
Informal	• Institutions and Government organisations reluctant to share authority • Focus on mobility solutions, rather than mobility needs • Competing priorities and goals of various government agencies • Social norms and individual preferences that support status quo

Source: (Stough 2005), (Transforum 2014)

In the context of Mumbai city, by applying the polycentric institutions model by Elinor Ostrom[2], specific instances of regulatory barriers have been identified in Table 3 below.

[2] Elinor and Vince Ostrom developed theories in institutional economics and political science on real world issues to do with the commons. At a time when multiple governance agencies were regarded as pathological, they developed a theory of polycentricity, where they argued that a number of government agencies did not necessarily lead to poor outcomes. A polycentric political system

Table 3: Regulatory Barriers in Selected Regions

Barrier	Description
Multiple Decision Centres	Government agencies involved in transport services include BEST Undertaking, Western Railways, Central Railways, Mumbai Metro, MMRDA
Autonomy of Operations	The agencies listed above are relatively independent and autonomous- they are accountable to voters, state urban development department, Indian Railways etc. respectively. The Regional Transport Authority (RTA) is responsible for motor vehicle taxation, issuing vehicular permits, changes in fare for cabs and autorickshaw services. However, the RTA and the state transport department have little say in the development of new mass transit projects currently under construction in the city.
Lack of Overarching Regulatory Framework	While a polycentric model by itself does not prevent sustainable mobility operations in a city, the lack of an overarching framework does. Maharashtra has a number of laws on transport, as well as policies on pedestrian-friendly mobility options. However, there is no single law that promotes public transportation, non-motorized mobility and evaluates the impact of cars on the city's sustainability.
Information availability	Information on transport projects is difficult to obtain during the planning and feasibility stages, despite having access to the Right to Information (RTI). Reasons include- information is held by different departments in silos, concession agreements are considered to have proprietary information, projects are "under review" and hence information cannot be shared. As MMRDA plans the routes for 9 Metro lines, there have been protests the re-alignment of Metro route 6. No public consultations were conducted before designing the route or modifying it (Mumbai Mirror 2018).
Transparency of decision-making	While making decisions such as location of Metro stations, drawing up the Development Plan, MCGM and MMRDA have provided some information to the public, mainly due to pressure from stakeholders.

Source: (CSTEP 2018), (Ostrom 2009), (MP Ensystems Research 2018)

3.2 Proposed solution to overcome barriers

Government agencies and private operators have undertaken efforts to improve mobility, with three trends described below:

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was one with "multiple centres of power, fragmented authority, and overlapping jurisdictions within a set of ordered rules". (CSTEP 2018)

1. Infrastructure building

Cities have undertaken infrastructure building – such as constructing additional miles of roads, highways and flyovers to reduce congestion. However, the additional road space is quickly taken over by new vehicles, as a result of triple convergence: spatial convergence (more people begin using their private vehicles), time convergence (more people travel during rush hour, due to the new infrastructure being built) and mode convergence (people switch from other modes to private vehicles, due to the new roads). (World Bank 2014)

2. Introducing policies without legislative framework

Governments have developed policies promote sustainable mobility, however this has not had a discernible impact on the ground. For instance, Government of India launched the National Urban Transportation Policy (NUTP) in 2006 and modified it in 2014. This policy includes Transit Oriented Development, Comprehensive Mobility Planning and integration of land use with transportation. The policy also called for creating UMTA in all cities with populations above 10 lakhs, to facilitate planning and implementation of urban transport programmes and manage integrated urban transport systems. NUTP also advocated the creation of an UMTA fund. However, more than ten years after the policy was adopted, there has been limited progress on UMTA in a few states. Without a law to back implementation of the policy, there has been minimal progress in achieving the goals of NUTP.

3. Unregulated private sector interventions

Over the past five years, Indian cities have seen multiple new players emerge in shared mobility, a few of which are listed below.

- Ride hailing - on-demand services that link riders to drivers using commercial vehicles, such as Uber and Ola. In 2016, Uber and Ola conduced approximately 70 million trips per month.
- Ride-splitting -shared option provided by transportation company on privately owned buses, cars or rickshaws, e.g. Olashare and UberPool.
- Ride sharing- similar to ride-hailing, except that the driver is not hired by the passengers, e.g. ad-hoc car pooling
- Bike-sharing- Bicycles, scooters are provided by company on rent, including docked, dockless and peer to peer. E.g. PEDL in Pune
- Car-sharing- Companies provide cars for rent for short or longterm use. E.g. Zoomcar

In addition to these ride sharing innovations, companies providing autonomous vehicles are expected to enter the the market. Ridesplitting and carpooling reduces vehicle kilometers travelled and hence reduces congestion, pollution and saves fuel; bicycle and scooter sharing

can provide last mile connectivity and these options provide entrepreneurship opportunities in cities (Niti Aayog 2018). However, most of these transport service companies do not conform to the existing regulatory framework of a City, State or All-India permit for a 'stage carriage' or a 'contract carriage' operation. Some states have notified regulations to deal with these mobility service companies, while others have considered banning the companies, or some aspects of their functioning, such as surge-pricing.

Another option is a regulatory approach which involves passing a law on Sustainable Urban Mobility, a Sustainable Urban Mobility Policy, an independent Urban Mobility Regulator at the city level, and a technical body at the centre to set standards and conduct research.

The Sustainable Urban Mobility Policy will lay out the goals to achieve in the area of urban mobility and the methods and principles that can be used to achieve it. The policy will be a living document to be revised every 3 years, based on priorities of the state and the findings of a survey on mobility services. The aim of the policy is not to prescribe in detail how the mobility sector develops or implements regulation; rather it provides best practice expectations to guide regulatory activities.

The regulator's office is to be set up at the city level. The functions of the regulator are below:

- Set tariffs for public, private and shared mobility services
- Set merit order for mobility and provide licenses, recommend to the state to build infrastructure based on merit order
- Ensure access for pedestrians, handicapped people and non-motorized mobility
- Adjudicate disputes between mobility service providers and referring disputes to arbitration
- Conduct public hearings of tariff fixation, grievances and other matters
- Provide inputs into the city Development Plans, land use planning
- Provide inputs to police department on parking
- Develop options for the city to reduce congestion, including but not limited to congestion charging, restricting registration of new vehicles by RTO
- Require public transport operators to set up a unified ticketing system to ensure seamless transfer between modes
- Provide oversight on the functioning of public, private and para-transit options, based on compliance and service level parameters

The Regulator(s) will be selected by a Government committee based on criteria included in the policy document. Funding for the regulator's office can come from a variety of sources, including the state government, a share of the license fee of mobility service providers etc.
An Appellate Tribunal for Transport Dispute Settlement will be set up at the state level, to hear appeals against decisions made by the Regulator.

The regulator acts as market referee and needs to balance competing wants from service providers, commuters, and Government agencies. Independence is crucial, to ensure that the regulator acts objectively, impartially and consistently. In order to keep the office of the regulator independent, the following factors should be kept in mind during the design stage:

Structural factors

- No involvement in running mobility services
- Transparency and accountability
- Independent committee to pick regulator
- Clearly stated qualifications

Financial factors

- Financial independence

Staff Behaviour

- Clear roles
- Statement of expectations on staff conduct
- Conditions on employment pre and post regulatory stint to prevent revolving door

Research has shown that in addition to features of institutional design, independence of the regulator is ensured by developing a culture of independence in the office of regulator (OECD 2016).

The following section lays out a template to evaluate current regulatory structures in cities and can be used to monitor the proposed Sustainable Mobility Regulator's office as well.

3.3 Evaluating the efficacy of Transportation Regulatory Environment

An important part of the reform is setting up a framework to evaluate the efficacy of the mobility regulator- both the institutional structures, as well as the outcomes for the city's residents.

The metrics to evaluate institutions have been developed under the Transport Governance Initiative (TGI) Toolkit (Transport Governance Initiative 2018). The toolkit provides a framework for evaluating the quality of transport governance in Indian cities. Elements have been added to this framework to evaluate outputs -efficiency, affordability, environmental impact of a city's mobility services.

This framework can be used to evaluate the quality of governance, as well as the outcomes in the selected city, to provide a clear picture of the strengths, as well as lacunae in the city's transport governance.

1. Evaluating institutions

The TGI toolkit evaluates the city's institutions on the basis of Transparency, Accountability, Participation and Capacity. The table below is a summary from the TGI toolkit. The last row in the table indicates the score to be assigned to each aspect of the city's institutions, depending on how many criteria are met.

Table 4: Institutional Mapping and Evaluation

Institutions in City	Capacity	Transparency	Accountability	Participation
Name of institute	Clear mandate Selection of members Tenure of members Access to knowledge	Background for policy or policy reform Availability of information in the public domain Meeting schedule, agenda and minutes publicly available Record keeping	Frequency of policy reform Comprehensiveness of reforms Policy process timeframe Setting of the agenda Conduct of meetings Holistic policy consideration Integration with other policies Setting policy outcomes Implementation of policy	Requirement for public engagement Clarity of public participation process Quality of participatory methods Inclusiveness of the participatory process Capacity for participatory consultations
Score	Low <1 Medium 2 High>3	Low <1 Medium 2-4 High>4	Low <2 Medium 2-5 High>5	Low <2 Medium 2-4 High>4

Source: (Transport Governance Initiative 2018)

2. Evaluating impact

The table below can be used to get a snapshot of the cities' mobility services on the parameters of efficiency, affordability, accessibility and environment friendliness.

Table 3 Framework to Evaluate Efficacy of a City's Transport Governance

Environmental Impact	Public transport	Non-motorized transport	Accessibility	Affordability

Air Quality Index Results of EIA before and after building mobility infrastructure	Share of trips using public transport YoY rate of change for past 5 years	Share of trips using non-motorized transport YoY rate of change for past 5 years	Availability and use of data- roadway network, pedestrian and bike paths, public transport network information, commute data, land use data	Cost of public transport as share of household income YoY rate of change for past 5 years
Low- less than India average High- greater than India average	Low- less than India average High- greater than India average	Low- less than India average High- greater than India average	Low- less than India average High- greater than India average	Low- less than India average High- greater than India average

Source: MP Ensystems Research, 2018

It should be noted that some of these measures are related to specific projects, but the objective is to develop a set of measures that taken together can be used to assess the quality of a city's mobility institutions and their performance.

4. Transport Regulator-International Case Studies

An international comparison of cities provides examples of existing successful regulatory mechanisms and best practices that may be applicable in the Indian context. The following criteria were used to select cities for the case studies:

- Cities with multi-modal public transportation
- Existence of urban transport regulator
- Variety in the following factors- geography, public vs private transport service providers, mode of regulation
- High rates of public transport usage
- Availability of information in English, or responsiveness of regulator to the survey questionnaire

Box 1. Transport Regulators in the USA

The following are well-known examples of transportation service providers in US cities:
Bay Area Rapid Transit (BART) is a rapid transit public transportation system serving the San Francisco Bay Area in California. BART runs five rapid transit rail systems and provides connectivity to bus systems.

Washington Metro runs metro trains and buses in the Washington DC metropolitan area, which includes areas in the neighbouring states of Virginia and Maryland.

TriMet (Tri-County Metropolitan Transportation District of Oregon) is a public agency operating metros and buses in the Portland metropolitan area. Trimet was created under a 1969 legislation and currently runs metro lines, light rail, buses and plans to run BRT services.

In all these cases, the organizations provide unified ticketing and transportation services. However, neither these organisations nor others at the city level act as independent regulators carrying out licensing, fare setting, setting service levels, monitoring compliance, promoting competition and providing grievance redressal.

Based on the available data and survey responses, case studies have been developed for the following cities/ regions:

- Paris, France

- London, UK
- Hong Kong, SAR China
- New Zealand

Data for the case studies is from publicly available sources and survey responses by the urban transport regulators (attached in Annexure I). The sections below contain the following information on the cities:

- Population, number of commuters and share of public transportation
- Transport service providers
- Regulator- evolution of regulator, role, funding
- Unified ticketing, consumer grievance redressal
- Tariff-setting mechanism
- Key takeaways from each case study
- Summary and comparison of regions

4.1 Paris

Paris city is in Île-de-France, also known as the Parisian region, which has a population of over 12 million and covers 12,000 sq. km. The major public transport sector players in Paris are:

Île-de-France Mobilités (ÎDF Mobilités)- formerly known as STIF- controls and coordinates the different transport companies operating in the Paris region. IDF has service contracts with private bus operators, RATP and SNCF (RATP 2003).
RATP- Régie Autonome des Transports Parisiens (Autonomous Operator of Parisian Transport) is a publicly owned transport company.
SNCF- Société Nationale des Chemins de fer Français (French National Railway Company) is the country's state-owned railway company.
OPTILE- Federation of private bus companies that provide bus services in outer ring of suburbs.

Table 4 Overview of transportation services used in Paris

Mode of transport	Operator	Features

Cars	Private Car-sharing platforms Car pool platforms Electric car hire	• Mode share of driving has reduced by 45% in 2017, compared to 1990 • Cars registered before 2000 banned entry into Paris
Buses	RATP STIF OPTILE	• 58 bus lines in the city • Express bus lanes
Metro	RATP	16 lines with 219 km of track and 302 stations
Regional Trains (RER)	RATP SNCF	High speed train network connecting the city to suburbs.
Suburban trains (Transilien)	SNCF	Trains to suburbs not covered by RER network
Trams	RATP SNCF	10 lines run within Paris and in the suburbs.
Cycles	Private Cycle-sharing companies	Share of cyclists has increased tenfold since 1990
Taxis	18,000 licensed taxis	In addition to licensed taxis, app-based aggregators
Electric car sharing	Private service provider	Autolib scheme discontinued in 2016 due to economic unviability

Source: (CitiLab 2018)

Box 2. Independent Multimodal Regulator at the national level

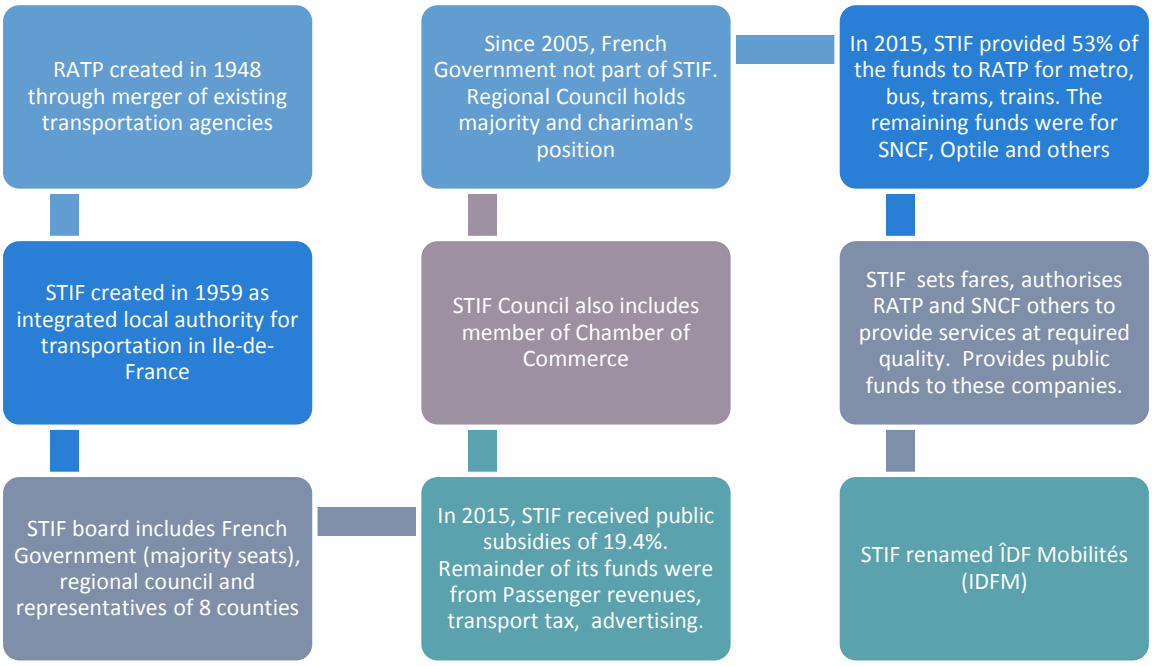
France does have an independent transport regulator- ARAFER that regulates French rail and road transportation. ARAFER receives its funds through levies on road and rail travel. Its role includes:

- Ensuring competition in rail transport
- Regulating intercity and international rail travel
- Supervising motorway companies

However, ARAFER does not regulate urban transport.

Source: (Arafer 2016)

Figure 5: Evolution of Regulatory Framework in Paris



Source: (STIF 2015)

Tariff Setting

- IDFM sets fares for transport services
- IDFM also sets a fuel levy TICPE (Taxe intérieur de consummation sur les produits énergétiques) on the import, export and production of fuel products. It can set the levy at a figure so that it receives up to 100mn Euro annually. (EMTA 2017)

Findings

1. The composition of the governing body of IDF was changed to incorporate more local representation.
2. Subsidies provided include funds from central and regional governments, funds for transporting students, and funds from the local bodies for operating loss-making routes.
3. There is a mix of public (RATP, SNCF) and private organisations (OPTILE buses) providing services, with unified ticketing and fare setting.
4. High quality of service provision has led to service providers expanding to other regions of France and internationally.
5. Jurisdiction of IDF extended to carpooling, bicycle sharing etc.

4.2 London

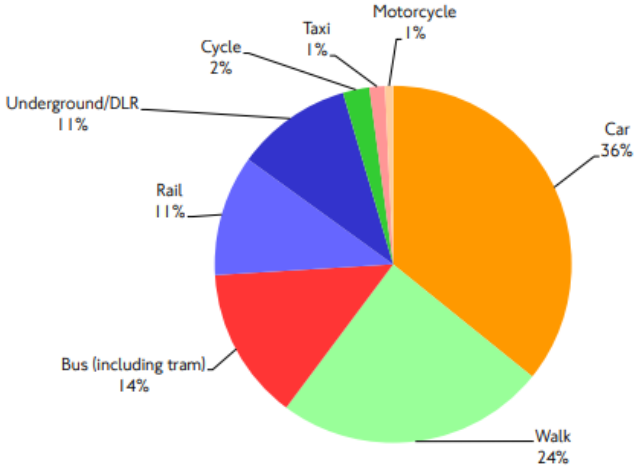
Greater London has a population of 8.8 million (in 2016) and it is the most populous city in Europe. As a result of geographical features as well as its dense network of public transportation, London is among the top 20 cities in Europe for lowest rate of car ownership per capita (EU Stats 2016).

Figure 6: Regions with the highest and lowest motorisation rates, 2016 (number of passenger cars per 1000 inhabitants)

Source: (EU Stats 2016)

The number of trips made in London in 2016 averaged 27.1 million per day; public transport accounted for 36.7 per cent of these trips. The most common modes of transport are in the chart below, all the public transport services are provided by Transport for London (TfL).

Figure 7: Most Common Modes of Transport in London



Source: (TfL 2017)

Table 5 Forms of transport provided by TfL

London Underground	Metro rail
London Buses	
Docklands Light Railway	Light Metro rail
London Overground	Suburban rail network
TfL Rail	Railway lines
London Trams	
London River Services	Licensed operators providing transportation by boat
London Dial-a-Ride	Door to door transport for people with disabilities
Santander Cycles	Bicycle share
Emirates Air Line	Urban cable car

Source: (TfL 2018)

Tariff Setting Process

1. For taxi cabs, TfL has the following procedure in place to set fares:

- An online survey or emails to get public inputs on factors such as minimum fare, telescopic fare, fare based on night time travel, cost index, card payment devices requirements etc.
- Inputs received from drivers and commuters
- After reviewing the responses, the TfL Finance Committee decides the fares and publishes them
  (TfL 2018)

2. For services run by TfL (metro, buses etc) TfL advises the Mayor on the fare to be set.

3. For the suburban train network, fares are set by individual Train Operating Companies (TOCs) in line with Retail Price Inflation (RPI) caps set by the Government

4. Fares for Travel Cards, which can be used on both TfL-run services (metro, buses etc) as well as suburban trains, are set in consultation between TfL and TOCs in line with RPI increases. (TfL 2017)

Funding:

The main sources of funding for TfL are:

- Fares – the single largest source of income
- Other income, including advertising income, property rental and income from the Congestion Charge
- Grant funding from the Department for Transport (DfT) and Greater London Authority (GLA) (TfL 2018)

Box 3. Anti-congestion and air pollution measures

Congestion charge imposed since 2003 for driving in central London during peak hours. Since 2017, an additional charge (toxicity charge or T charge) has been introduced for vehicles that do not meet Euro 4 standards (TfL 2017).

Evolution of regulatory framework

TfL is a statutory body created under the Greater London Authority Act 1999. The Act empowers the Mayor of London to develop safe, integrated, efficient and economic transport facilities. TfL replaced the London Regional Transport organisation, which was under the control of the government transport ministry. TfL in contrast has the Mayor of London as the Chairman of the Board, with several independent directors from industry, health and safety, air quality and housing sectors (TfL 2018).

Role as Regulator

Under the Greater London Authority (GLA) Act 1999, TfL is required to perform the following roles:

- Provide public transportation to, from or within London
- As the highway and traffic authority, TfL is responsible for regulating how the public uses roads
- TfL is the licensing authority for taxis and private hire vehicles

Hence, TfL is both a service provider and a regulator. In September 2017, TfL withdrew the license to operate for UBER within London, on the grounds of public safety. In 2018, the courts allowed UBER to operate for 15 months, after it meets certain conditions, including those required by TfL.

Findings

1. London's public transportation has a single entity providing services, setting fares and unified ticketing
2. TfL is the operator of all public transport services and regulator for private transport services
3. TfL is under the control of the city's local Government
4. Its funding sources include fares, grants and other charges
5. TfL provides the public transportation services and applies a congestion charge in certain areas to people who use private transportation

4.3 Hong Kong

Hong Kong handles 12.7 million people on public transport every day (2017). The population in Hong Kong is approximately 7.4 million. Over 90% of the passenger journeys are made on public transport. Hong Kong has a multi-modal public transport system, comprising:

(i) Mass Transit Railway (accounts for 42% of daily journeys in Hong Kong)
(ii) Franchised Buses (31%)
(iii) Public Light Buses (14%)
(iv) Taxi (7%)
(v) Non-franchised buses (3%)
(vi) Tramway (1%)
(vii) Ferries (1%)

All these public transport services are operated by the private sector and are authorized and regulated by the Transport Department through granting franchise or license to the operators.

Regulator

The Commissioner for Transport is the head of the Transport Department, assisted by 2 Deputy Commissioners specializing in "Transport Services & Management" and "Planning and Technical Services" respectively. The function and duties of the Department are as follows:

i. Administration and Licensing Branch
ii. Bus and Railway Branch
iii. Management and Paratransit Branch
iv. Urban Regional Offices

v. New Territories Regional Offices
vi. Planning Branch
vii. Technical Services Branch

The Transport Department is under The Transport and Housing Bureau of the Government of Hong Kong Special Administrative Region which oversees the Transport Policy in Hong Kong. The Transport Department is funded by the Hong Kong Special Administrative Region (SAR) Government.

The major cost heads are as follows:

1. Operational expenses (45%)
2. Government public transport fare concession scheme for the elderly and disabled (29%)
3. Public Transport Fare Subsidy Scheme (17%)

Fare Setting Process

The mechanism of setting the fares of railway and franchised bus are as follows:

1. Railway's fare adjustment is determined by a formulaic approach, namely the Fare Adjustment Mechanism ("FAM"). The FAM adopted a "direct drive" fare adjustment formula as follows:

Overall Fare Adjustment Rate = (0.5 x Change in Composite Consumer Price Index) + (0.5 x Change in Wage Index) - Productivity Factor.

2. Under the Public Bus Services Ordinance, the scale of bus fares is determined by the Chief Executive-in-Council. Previous fare adjustments were all initiated by bus operators. Factors that determine bus fare adjustments include:

(i) changes in operating costs and revenue since the last fare adjustment
(ii) forecasts of future costs, revenue and return
(iii) the need to provide the operator with a reasonable rate of return
(iv) public acceptability and affordability
(v) quality and quantity of service provided
(vi) outcome of the fare adjustment formula

Subsidies

The Government's policy is that public transport services should be run by the private sector in accordance with commercial principles to enhance efficiency and cost-effectiveness. Currently, the Government subsidizes a few outlying island ferry routes. There is no other direct subsidy from the Government for public transport services.

Receiving feedback from commuters

The Transport Complaints Unit (TCU) receives suggestions and complaints from the public on transport matters. The public can also provide their feedback via a hotline phone service operated by the Government of Hong Kong.

Role in Urban Planning

The principal body responsible for statutory planning in Hong Kong is the Town Planning Board (TPB). Representatives from the Transport Department are members of the Board, assisting TPB to oversee the preparation of draft statutory plans, to consider representations to such draft plans and to vet development applications for planning permission and amendments to plans related to prevailing traffic and transport requirements.

(The source of all information on Hong Kong is the email questionnaire filled by an official at the Transport Department, Government of Hong Kong)

Findings

1. Hong Kong has separated transport services provision from regulation
2. The Government does not subsidise public transportation other than specific ferry routes, which is also a differentiating factor, compared to other cities
3. The accessibility and affordability of public transport in Hong Kong needs to be studied further.

4.4 New Zealand

The NZ Transport Agency was set up on 1 August 2008, through the merger of Land Transport NZ, Transit NZ, and Land Transport Safety Authority into a single organisation. It serves as a link between government policy-making and the operation of the transport sector.

NZTA's main functions include the following:

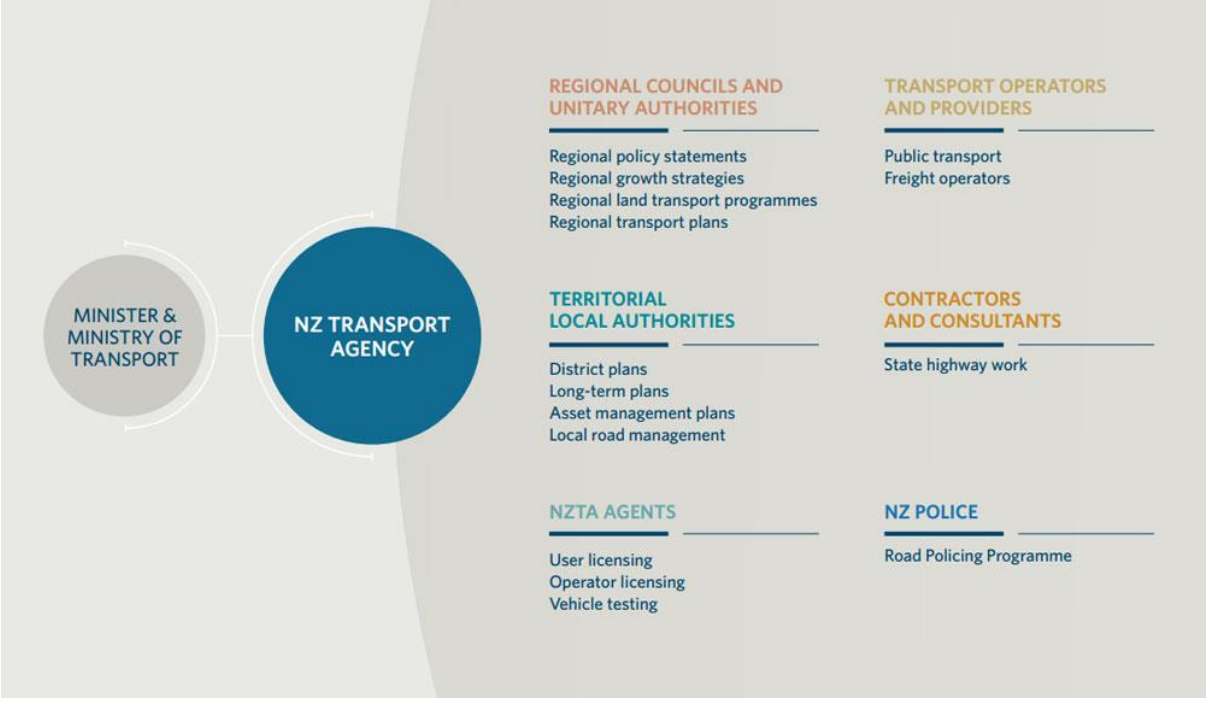
- Contribute to an effective, efficient and safe land transport system in the public interest.
- Manage the state highway system, including planning, funding, design, supervision, construction and maintenance operations.
- Manage funding of the land transport system, including auditing the performance of organisations receiving land transport funding.
- Manage regulatory requirements for transport on land.

NZTA receives revenues from the following sources:

- It collects all revenue dedicated to the National Land Transport Fund (NLTF) through road user charges and fuel excise duty.
- Significant revenue also comes from third party fees and charges for services.

NZTA works with local governments to improve, maintain and renew roads, support public transport and build new transport infrastructure assets to meet changes in demand. NZTA also works with land use planners, urban designers, engineers, and businesses and communities to deliver transport solutions and land use patterns. In the large metropolitan areas of Auckland, Wellington and Christchurch, NZTA has an important cofounding and regulatory role (NZTA 2011).

Figure 8: Link between NZTA and other stakeholders



Source: (NZTA 2017)

Tariff setting

NZTA does not directly set fares for public or para transport services. However, as per the Regional Public Transportation Plan, within an urban area, the city transport authority conducts an annual fare review and adjustment process and must ensure that the fare increase keeps pace with increased operating costs as measured by NZTA indexing. The Transport agency may also make additional fare increases in order to achieve the fare recovery target set earlier. The transport provider also is obliged to review fares annually with its public transport contractors (Auckland Transport 2017).

Interaction with commuters

NZTA regularly talks and listens to road users, suppliers and other stakeholders including the government and local authorities. Interactions are informal through daily work on projects around the country, as well as formal (regular surveys, annual surveys and open days) (NZTA 2015).

Findings

1. NZTA does not provide transport services, but supports cities that provide these services
2. NZTA manages certain regulatory requirements for urban transport, but it does not directly supervise transport service providers, or set fares
3. The agency is responsible for transport throughout NZ, not just within cities.
4. The agency has a policy to protect the environment, as well as the cultural and historical heritage.
5. NZTA publishes an Annual Report and goes through performance reviews where it is rated on various measures
6. NZTA is a signatory to the NZ Urban Design Protocol, and hence aims at ensuring that transportation networks fit in with the build, natural and community environments.

Summary

The table below contains a summary of the case studies:

Table 6 Summary of Case Studies of transport in different cities across the worlds

Regulator	Established	Role	Operates transport services	Source of funds
ÎDF Mobilités	Created in 1959. Reforms in 2005 to give full control to local government representatives	• Controls and coordinates all transport operators • Mobility planning • Monitors investments	No Issues contracts to private bus services, and state-run rail and metro service providers	• Public subsidies • Passenger revenue • Transport tax • Advertising
TfL	Statutory body created under the Greater London Authority Act 1999	• Provide public transportation • Licensing authority for taxis and private hire vehicles • Impose Congestion Charge	Yes Operates all public transportation services in London (Metro, light rail, suburban rail, buses, cycles, water transport	• Passenger revenue • Advertising, property rental • Congestion Charge • Grant funding
Hong Kong Transport Department	Government department under Transport and Housing Bureau	• Licenses private operators • Sets fares • Public grievance redressal • Inputs into urban planning	No Grants licenses to private operators to run public transport services	• Revenue from fares • Subsidy for a few outlying island ferry routes
NZTA	Established in 2008 through the merger of Land Transport NZ, Transit NZ, and Land Transport Safety Authority	• Build transport infrastructure • Regulatory role in large metropolitan areas • Safety • System design and delivery	No Local Government provides public transportation services	• Road user charges • Fuel excise duty • Third party fees and charges for services

Source: (MP Ensystems Research, 2018)

Take-aways from the case studies for setting up a transport regulator in India

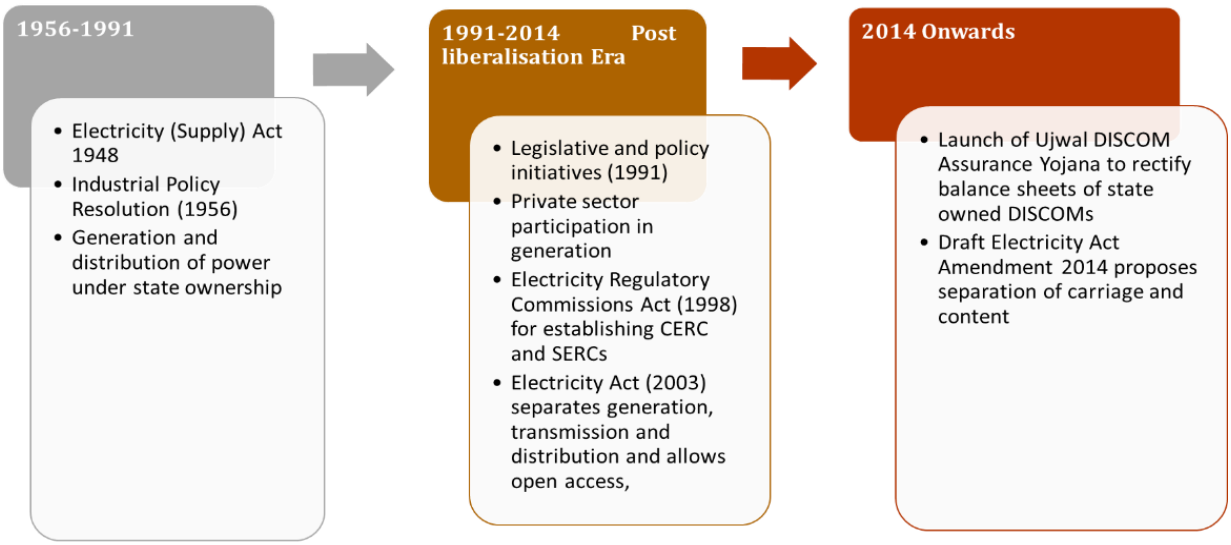
1. Most of the cities we studied had a single agency, empowered, locally governed and receiving Government funds.
2. The political system of the transport regulators varies- in the case of London and Paris, the regulators are run by the local government which has a directly elected mayor with executive powers.
3. Both types of set ups- cities where a central agency regulates and does or does not provide services can be successful.
4. In most cases, the regulator was appointed by and reported to the local government. None of the cities had an independent statutory body set up to regulate transportation.
5. Most of the agencies studied had legislative backing for their functioning.
6. Tariffs based on a combination of the following methods: increase in a specified price index, public surveys, report by committees.
7. Transportation regulators and service providers have direct or indirect inputs into the planning and land use process.
8. Most of the cities provided some form of subsidy or Viability Gap Funding to public transport operators.
9. Further study is required of what rules these agencies follow to deal with air pollution and what measures they undertake in response. E.g. Measures to limit car registration, issuing alerts to commuters when air quality is poor.

5. Learning from Other Infrastructure Sectors

Infrastructure industries and services are essential for economic growth, poverty alleviation and improving quality of life. India has carried out regulatory reform in electricity, telecom and other infrastructure sectors, mainly due to the poor outputs and financial condition of state-owned network utilities. After the performance problems of state-owned enterprises, the government instituted reforms that involved restructuring, opening the sector to private sector and the establishment of regulatory structures. These reforms aim at allowing public and private participation, improving service coverage, reducing costs for consumers and improving infrastructure quality and quantity (World Bank 2004).

This section examines the regulatory structures (institutions, roles, power of the regulator, jurisdiction, consumer redressal and appellate process) in three infrastructure sectors in India- power, telecom and ports. The figure below shows the reform process in the power sector.

Figure 9: Power Sector Regulatory Reform



Source: (MNRE 2015)

The aim of this exercise is to understand the regulatory framework- power, jurisdiction, independence of the regulators, the reform process that they have undergone and what, if any lessons can be learnt in the transport sector.

Table 7 Learnings from Other Infrastructure Sectors

Sector	Institutions	Roles	Powers of Regulator	Jurisdiction	Consumer Redressal	Appellate Process
Electricity	Central Electricity Authority	Advisory, Policy Making and Regulation Making in Generation, Transmission, Trading, Distribution and Utilization of Electricity and in the areas of National Electricity Policy, Development of Electricity System, Technical Standards for construction of Electrical Plants, Connectivity to the grid, Operation and Maintenance of transmission lines, conditions for installation of meters, carrying out technical studies.	Advisory, Policy Making and Regulation Making	Pan India except state of Jammu and Kashmir	Writ Jurisdiction of the High Courts under Art. 226 and 227 of the Constitution	None
	Central Electricity Regulatory Commission	Purely Regulatory, Tariff making (Central Sector Generating Companies and Other Generating Companies selling in more than one State), Fix Inter State Trading Margin, Grantor of License for Interstate Transmission and Interstate Trading, Adjudicate Disputes between Generating Companies and Licensees and Regulate the	Adjudication of disputes, revoke license, imposing penalty for contravention of its orders/regulations, issue regulations	Inter State	Appeal before Appellate Tribunal	Appeal before Appellate Tribunal

		National Grid; advisory role to Central Government on broad matters concerning Electricity industry.				
	State Electricity Regulatory Commissions	Purely Regulatory, Tariff making (Generation, Transmission and Distribution), promote and regulate open access to the grid, promote competition, regulate power procurement, grantor of License for Transmission, Distribution and Trading, promote renewable energy, Fix Trading Margin, Adjudicate Disputes between Licensees and Generators, regulate grid, Advisory role to State Government on broad matters concerning electricity industry.	Adjudication of disputes, revoke license, imposing penalty for contravention of its orders/regulations, issue regulations	Intra State (Confined to the Territory of the specific State)	Appeal before Appellate Tribunal	Appeal before Appellate Tribunal
	Load Dispatch Centres (National, Regional, State)	Scheduling and dispatch of electricity, monitoring grid operations, Supervision and control over interstate Transmission system, Real time operations for grid control for dispatch of electricity	Issue directions and exercise supervision and control over the grid and its users. Empower to impose penalty	NLDC (Pan India), RLDC (Region wise), SLDC (specific state wise)	Complaint before CERC or SERC as the case may be	Appeal before Appellate Tribunal

	Appellate Tribunal for Electricity	Deciding Appeals against orders passed by CERC and SERCs and issuing directions for performance of statutory functions by CERC and SERCs.	Tribunal is not bound by Code of Civil Procedure. Has powers of a civil court for summoning any person, discovery and production of documents, evidence, examination of witness. Tribunal can execute its order as a Decree of a Civil Court	Pan India (with provision of circuit benches in Mumbai, Chennai and Kolkata)	Statutory appeal before Supreme Court	Statutory appeal before Supreme Court
	Special Courts	Trial of offence of theft of electricity	Determine civil liability in terms of money for theft	Intra State (Confined to the Territory of the specific State)	High Court	Appeal and Revision before the High Court.

Telecom	Department of Telecommunications (DoT), Ministry of Communications.	(i) Policy, Licensing, and Coordination matters relating to telegraphs, telephones, wireless, data, facsimile and Telemetics services and other like forms of communications; (ii) International cooperation in matters connected with telecommunications including matters relating to all international bodies dealing with telecommunications; (iii) Promotion of standardization, research and development in telecommunications	Revoke licence Order penalty	Pan India	Arbitration	High Court
	Telecom Regulatory Authority of India	Interconnection between different operators and service providers; Regulate revenue sharing arrangement between different service providers; SOP for local and long – distance DoT circuits between service ; consumer interests through monitoring of service quality standards; license conditions, universal service obligations; pricing policy by all operators and service providers; settle disputes between service providers; fix tariff for telecom service and ensure price	Conduct Investigations; Issue directions to service providers	Pan India	Adjudication of disputes between licensor; licensee service providers; group of consumers by TDSAT (Telecommunications Dispute Settlement and	TDSAT

		regulation, and advisory to government on technology options, service provision.			Appellate Tribunal)	
	TDSAT (Telecommunications Dispute Settlement and Appellate Tribunal)	Adjudicate disputes between licensor; licensee service providers; group of consumers	Tribunal is not bound by Code of Civil Procedure. Has powers of a civil court for summoning any person, discovery and production of documents, evidence, examination of witness. Power to order penalty.	Pan India	Statutory appeal before Supreme Court	Statutory appeal before Supreme Court
Ports	12 major ports are statutory bodies (trusts) administered by the Government of India under the Indian Ports Act, 1908 and the Major Port Trust Act, 1963.	Each major port is governed by a Board of Trustees. Tariff Authority for Major Ports (TAMP)	Tariff Authority for Major Ports (TAMP) for regulating tariffs in major ports. The TAMP fixes tariff ceilings for services rendered by major	The trustees exercise limited power and are bound by directions on policy matters and orders from	Arbitration	High Court

Minor ports are placed in the Concurrent list of the Constitution and are administered under the Indian Ports Act, 1908 ("IPA"). The IPA defines the jurisdiction of Central and State governments over ports. It lays down rules for safety of shipping and conservation of ports. It regulates matters pertaining to the administration of port dues, pilotage fees and other charges. At the State level, the department in-charge of ports or the State Maritime Board (created through State legislation), is responsible for	ports. The major ports are free to fix tariffs on various services at any level, which is less than the notified tariff ceilings prescribed by the TAMP. TAMP's mandate is limited to only notification of the tariff bands. It doesn't have any quasi- judicial authority like regulators in other infrastructure sectors (e.g. Telecom Regulatory Authority of India (TRAI), the Central Electricity Regulatory	the Govt of India. The port trusts are expected to serve public interest rather than maximizing profits or revenues.	

	formulation of water front development policies and plans, regulating and overseeing the management of state ports, attracting private investment in the development of state ports, enforcing environmental protection standards etc.	Commission (CERC) etc.).

Source: MP Ensystems Research, 2018

The table above described the regulatory structure in electricity, telecom and ports sectors. Transportation has a number of differences that make it impossible to directly apply the regulatory structure of these sectors to it. However, the recommendations below provide a starting point for the discussion on how to set up a potential regulatory structure.

Recommendations for Mobility

The recommendations in the table below are a starting point to develop a three-tiered urban mobility regulatory structure, after further discussions with policy makers, stakeholders and legal experts.

Table 8 Recommendations for Mobility Regulator at State and City Levels

Institutions	Roles	Powers of Regulator	Jurisdiction	Consumer Redressal	Appellate Process
TIER 1 Single Authority to co-ordinate key functions of transportation (planning and to some extent regulation at the **state** level.)	• To ensure effective public transport systems are in place at the state level • To deliberate and recommend effective transportation strategies at the state level • To integrate and consolidate all the Action plans of various Urban Mobility Regulators (UMRs) and other state planning bodies to ensure implementation of the traffic and transportation plans at the state level • Integrating various routes of public transport and issues of	Planning Advisory	State level	Transport (Dispute Settlement and Appellate Tribunal)	Transport (Dispute Settlement and Appellate Tribunal)

	combined ticketing, feeder services, etc at state level across UMRs				
TIER 2 Urban Mobility Regulator at **the metro city level**.	• To oversee implementation of various traffic and transportation measures undertaken by various agencies in the metropolitan region • To ensure effective public transport systems are in place for the metropolitan region • To ensure effective coordination and implementation of the various traffic and transportation measures undertaken by various departments • To promote and monitor key/ major traffic and transportation projects • To deliberate and recommend effective transportation strategies for the metropolitan region • To integrate and consolidate all the Action plans of various	Transport Planning Making Regulations Policy Making Advisory to the Government Resolve any disputes in the multi-tier structure	Metro City	Adjudication of disputes between licensor, licensee, service providers, consumers, by Transport Dispute Settlement and Appellate Tribunal	

	departments and agencies and ensure implementation of the traffic and transportation plans for the metropolitan region • To give directions to different agencies involved in the implementation of traffic and transportation policies and measures, including shifting of utilities and services/ amenities • Processing of funds for implementation of proposals • Integrating various routes of public transport and issues of combined ticketing, feeder services, etc • Approval of all traffic and transportation proposals/ projects from any agency in the metropolitan region and all new initiatives • To direct the appropriation/ subvention of funds from various departments and agencies of the state government for ensuring				

	implementation of the traffic and transportation plans and measures in the metropolitan region				
TIER 3 Government regulatory departments	• Regulation • To oversee and regulate implementation of various traffic and transportation measures undertaken by various agencies • Monitor processing of funds for implementation of proposals • Ensure compliance by Tier 3 agencies • To provide regulatory oversight on key/ major traffic and transportation projects • Providing government approval of all traffic and transportation proposals / projects from any agency in the metropolitan region and all new initiatives • To direct the appropriation / subvention of funds from various departments and	Network of existing regulatory agencies for monitoring and enforcement of Tier 1 agency plans on Tier 3 agencies. These are existing transport related departments within the State Government Structure. Their focus will now be only on regulation as all planning related functions have been moved to Tier 1.	Metro City	Transport Dispute Settlement and Appellate Tribunal	

	agencies of the state government for ensuring implementation of the traffic and transportation plans and measures in the metropolitan region				
TIER 3 Implementation agencies	• Implementation • To implement key/ major Implementation traffic and transportation projects • Processing of funds for Implementation of proposals	Existing agencies such as PWD and SRTC that are responsible for and capable of operations and implementation	Metro City	Transport Dispute Settlement and Appellate Tribunal	
Transport Fund	Finance implementation projects		Metro City	Transport Dispute Settlement and Appellate Tribunal	

Source: MP Ensystems Research, 2018

6. Regulatory Reform Proposal for Urban Mobility in India

Based on research on the regulatory framework in select cities, engagement with stakeholders and analysis of regulators in other sectors and countries, the following regulatory reforms can be undertaken in the urban mobility sector:

1. Technical body for setting standards

The Indian Road Congress (IRC) is a registered society of highway engineers that hosts a national forum for exchanging ideas on planning, design and construction of roads and highways. It works closely with the Government to sets codes of practice, specifications and standards. However, the focus is only on roads, without regard to essential features such as access for non-motorized mobility, planning for vending zones, bus and para transit stops, lighting, tree shade, water permeability. Also, the recommendations are not mandatory when cities design urban mobility infrastructure.

In its place, a technical organization- the Central Mobility Authority- can be set up under a central act to conduct research, provide technical guidance and provide statutory standards that are mandatory for states to follow. The proposed authority is to be set up separately from the state Sustainable Urban Mobility Act.

2. Institutional framework

There is currently no law governing urban mobility. Since transport is concurrent subject, states can legislate on mobility. Institutional reform in the urban mobility sector can be carried out through an overarching Sustainable Urban Mobility Act, to be passed at the state level. The Motor Vehicle Act only covers motorized vehicles, hence a state law on urban mobility would not contravene or impinge on the implementation of the MV Act.

The components of this reform are: State Urban Mobility Law; Urban Mobility Regulator at the city level; State Urban Mobility Policy to be updated regularly and rules for interaction between government agencies involved in urban planning.

3. Market regulator

Research on the regulatory environment in cities across India has shown that an effective market regulator at the city level needs to have legislative backing. A city-based independent regulator can be set up to perform the following functions:

- Set tariffs for public, private and shared mobility services

- Set merit order for mobility and provide licenses, recommend to the state to build infrastructure based on merit order
- Ensure access for pedestrians, handicapped people and non-motorized mobility
- Adjudicate disputes between mobility service providers and referring disputes to arbitration
- Conduct public hearings of tariff fixation, grievances and other matters
- Provide inputs into the city Development Plans, land use planning
- Provide inputs to police department on parking
- Develop options for the city to reduce congestion, including but not limited to congestion charging, restricting registration of new vehicles by RTO
- Require public transport operators to set up a unified ticketing system to ensure seamless transfer between modes
- Provide oversight on the functioning of public, private and para-transit options, based on compliance and service level parameters

The outline of the proposed Sustainable Urban Mobility legislation is below.

(Draft) [*name of state*] Sustainable Urban Mobility Bill 2019

Preamble

An Act to

- consolidate the laws relating to urban mobility;
- declare urban mobility area(s);
- take measures conducive to development of transport infrastructure, promoting competition, protecting interests of consumers, promotion of efficient and environmentally benign policies, and to promote sustainable, affordable, clean, safe, reliable, equitable access and mobility;
- reduce pollution, congestion, to provide for measures on the principle of Avoid-Shift-Improve; to promote merit order while developing mobility options and infrastructure; based on the principles of sustainability, affordability, equitable access;
- promote secure, resilient and efficient mobility;
- provide for the constitution of an Urban Mobility Regulator at the city level to coordinate between service providers, adjudicate upon disputes between service providers and users, to develop a Sustainable Urban Mobility Policy and provide input into planning decisions, conduct public hearings and grievance redressal;

Section 1:- Short title, extent and commencement

Name: Urban Mobility Act, 2019
Extent: Urban Mobility area to be notified.
Commencement: Date of notification in the official gazette; different dates may apply for different provisions to come into force (stage wise applicability).

Section 2:- Definitions

"Sustainable Urban Mobility Policy":-

- Policy plan to promote sustainable, affordable, clean equitable access and mobility in cities based on the principle of Avoid-Shift-Improve.
    - mobility options that are economically prudent/ least system cost/ most affordable for the user;
    - secure, resilient and efficient mobility;
    - merit order while developing mobility options and infrastructure;
    - sustainability, affordability, equitable access;
    - changing public preference and changing technologies;
    - review of data collection on urban mobility, environmental impact of existing and proposed mobility options;
    - three yearly review

"**Transportation**" - Public Transportation (a system available to the public, operating established routes while following a published schedule at set fares); Inter-Mediate Transportation services that supplement public transport systems by providing individual rides without fixed routes, schedules or fares); Personalised Vehicles; Non-motorised transport; Intelligent transport systems; parking; footpaths; pedestrian facilities; foot-over bridges etc ;

"Mobility" movement of people or goods, including motorized and non-motorized transport. Mobility is measured in person kms per trip.

"Accessibility" ability of people to reach desired destinations, goods, services or activities, through improved transportation, improved mobility, change in land use.

"Multi-modal" diverse mobility options including walking, cycling, public transit and automobile. This may or may not be under a single contract or service provider.

"Merit Order" method of ranking available mobility options, based on ascending order of price, or any other criteria

"Stage Carriage" motor vehicle carrying passengers from end to end, without stopping to pick up or drop passengers along the route

"Contract Carriage" motor vehicles with a carrying capacity greater than six, providing transport services along a fixed route

"Shared Mobility" shared use of a vehicle, bicycle or other mode of transportation on an as-needed basis

"Urban Mobility Regulator" independent regulatory agency at city level that is responsible for promoting clean, efficient, affordable mobility

"Unified Mobility Area" notification of specific area for stage wise implementation of the Act

"Urban transport Fund" Central Govt Allocations, State level urban transport fund; transport cess, other funds

Section 3:- Urban Mobility Area

Notification by the Urban Mobility Regulator the Territorial Limit of Area for stage wise implementation of the Act

Section 4:- Urban Mobility Regulator

At the city level, an independent Mobility Regulator is to be set up to implement the provisions of the Act and to promote affordable, efficient, environment friendly mobility options.

NOTE:- *The office of the regulator will not provide any public transport services to ensure that there is separation between regulator and service operator. The regulator's office aims to ensure that the city's residents have affordable, efficient, accessible environment-friendly mobility options.*

(a) Constitution

- Every city shall within six months from the appointed date, by notification, constitute for the purposes of this Act, the (name of the city) Regulator.
- The regulator shall be a body corporate by the name aforesaid, having perpetual succession and a common seal with power to contract
- The Regulator shall consist of not more than Four Members, including the Chairperson
- The Chairperson and members shall be appointed by the State Government on the recommendation of a selection committee

(b) Qualification for appointment of Chairperson and Members of Regulator

- The Chairperson and the Members shall be persons of ability, integrity and standing who have adequate knowledge of, and have shown capacity in, dealing with problems relating to transportation, mobility, urban planning
- The Regulator shall consist of not more than Four Members, including the Chairperson
    - Chairperson to be expert from urban transport sector;
    - Member having expertise in urban development; town and country planning
    - Sitting or retired judge of High Court to be member
    - Commissioner of Municipal Corporation to be member *ex offico*
- The Chairperson or any other Member of the State Commission shall not hold any other office
- The Chairperson shall be the Chief Executive of the Mobility Regulator office

(c) Constitution of Selection Committee to select Regulator

- The State Government shall, for the purposes of selecting the Regulator, constitute a Selection Committee consisting of:
  - Chief Secretary
  - Public Works Department of the State, not below the rank of [_____] and having jurisdiction in the Urban Mobility Area, as Member of the Authority;
  - Transport Department of the State, not below the rank of [_____]

- The Selection Committee shall finalise the selection within three months

(d) Functions of the Urban Mobility Regulator

- Prepare Sustainable Urban Mobility Policy
- Regulate and establish co-ordination amongst transport agencies; land use agencies; PWD; Municipality; Forests; Irrigation; SEB; Railways; Urban Development Department; Dept of Town & Country Planning; Dept of Transport; Motor Vehicles Dept; RTO; State Road Transport Corporation; Road Fund; Road Safety Cell; Police Dept; etc
- Integrate urban transport, multi modal transport
- Promote sustainable, affordable, clean equitable access and mobility;
- Develop options for the city to reduce congestion, including but not limited to congestion charging, regulate registration of new vehicles by RTO
- Administer Urban transport Fund ; non-budgetary fund; mobilize; deploy; and manage funds to facilitate development of logistical infrastructure and amenities

  - Effective management of funds
  - Ensuring better private sector participation
  - Ensuring timely completion of projects through effective utilization of resources

  - Promoting private sector participation in infrastructural projects
  - Funding feasibility studies for innovative road projects
  - Constructing new roads wherever necessary
  - Implementing road safety projects as are found essential for safe and smooth traffic movement
  - Funding research related to maintenance and development of roads
  - Developing existing road network systems including upgrading roads maintained by the PWD

  NOTE:- Role is more of a facilitator to ensure various projects can be executed and are adequately financed.

- Levy transport cess; congestion charges;
- Regulate tariffs for public, private and shared mobility services; parking charges;
- Set merit order for mobility based on Sustainable Urban Mobility Policy,
- Facilitate building of infrastructure based on merit order
- facilitate access for pedestrians, handicapped people and non-motorized mobility
- Establish and regulate Road Safety Cell

  o Accident site improvement scheme
  o Road safety audit – model road
  o Junction improvements
  o Safety assessment of maintenance roads
  o Demonstration signs and markings
  o Improvement of hazardous locations

  o GIS enabled road accident database

  - Education
  - Enforcement
  - Road safety awareness program and Road Safety Action Plan

    NOTE: UMR needs inter-departmental coordination, co-operation and collaboration among all stakeholders of road safety to enhance the safety culture of all road users.

- Adjudicate disputes between mobility service providers and referring disputes to arbitration
- Conduct public hearings of tariff fixation, grievances and other matters
- Regulate public transport operators and set up a unified ticketing system to ensure seamless transfer between modes
- Regulate the functioning of public, private and para-transit options, based on compliance and service level parameters
- Discharge such other functions as may be assigned to it under this Act
- Advise the State Government on matters related to Sustainable Urban Mobility; Advise for city Development Plans, land use planning, Advise police department on parking
- Make Regulations to implement the Act

(e) Powers of the Urban Mobility Regulator

- Issue binding directions to urban transport agencies
- Order penalty
- summoning and enforcing the attendance of any person and examining him on oath;

- discovery and production of any document or other material object producible as evidence;
- receiving evidence on affidavits;
- requisitioning of any public record;
- issuing commission for the examination of witnesses;
- reviewing its decisions, directions and orders;
- power of entry and seizure
- An order shall be executable by UMR as a decree of civil court and, for this purpose, the UMR shall have all the powers of a civil court.

(f) Post-employment conditions

- Any member ceasing to hold office as such shall –

(a) not accept any commercial employment for a period of two years from the date he ceases to hold such office; and
(b) not represent any person before the Regulator in any manner.

Section 7: Sustainable Urban Mobility Policy

Objective

The UMR will develop an Urban Mobility Policy which will lay out the goals to achieve in the area of urban mobility and the methods and principles that can be used to achieve it.

Some of the key areas to be covered by the policy are :-

- Infrastructure planning and design
- Fund requirement and mobilisation
- Land acquisition
- Project execution
- Asset management and control
- Training and Education
- Institutional restructuring
- Stakeholder participation and transparency

General Approach towards Mobility

The basis of the policy is the principle of “Avoid- Shift- Improve”. Avoid refers to changes in land use and urban planning, to reduce the need for mobility. Shift refers to people selecting the most environmentally benign mode, prioritising non-motorised transport and public transport. Improve refers to harnessing efficient technologies- from fuel choice to infrastructure building.

Data Gathering

The policy will contain the following details on data collection – type of data to be gathered, methodology, analysis, dissemination, frequency, appointment of agency to gather data. Data will be gathered on various aspects of demand, supply, environmental impact, technology changes in urban mobility. The policy is to be updated based on analysis of the findings of the survey and the results are to be made public.

The policy will be a living document to be revised every 3 years, based on priorities of the state and the findings of a survey on mobility services. The aim of the policy is not to prescribe in detail how the mobility sector develops or implements regulation; rather it provides best practice expectations to guide regulatory activities.

- Draft to be published
- Public Hearing

Section 8: State Govt to make Rules

- Salaries, allowances, terms and conditions of service of the Chairperson and the Members of the UMR;
- Other matters which are, or may be, prescribed under this Act.

Section 9: Appeals

- State Govt shall constitute the Appellate Tribunal for Transport Dispute Settlement

Appeals against decisions made by the UMR before the Appellate Tribunal for Transport Dispute Settlement

Section 10: Miscellaneous

- Nothing contained in this Act or any rule or regulation made thereunder or any instrument having effect by virtue of this Act, rule or regulation shall have effect in so far as it is inconsistent with any other provisions of the Motor Vehicles Act,1988.

- The provisions of this Act are in addition to and not in derogation of any other law for the time being in force.

Section 11: Amendments to other State Acts

- State Regional and Town Planning Act

NOTE:- *All relevant local laws to be examined, depending on the state. A detailed exercise will need to be carried out to see whether any existing laws need to be overridden by this legislation.*

Annexure 1: Mobility Laws and Policies in Selected Regions

Table 9 Acts, Policies and Rules in Urban Transportation in Selected Regions

Act/ Policy/ Rule	Key Highlights
Mumbai & Pune, Maharashtra	
The Maharashtra Motor Vehicles Rules, 1989	Rules aligning to The Motor Vehicles act 1988 and The Central Motor Vehicles Rules 1988. (Issuing of licence, Registration, Control of Traffic, etc)
Bombay Motor Vehicle Passenger Tax Act, 1958	Tax to be paid by fleet owners/operators and stage carriers to the RTO
Bombay Motor Vehicle Passenger Tax Rules, 1958	
Maharashtra Motor Vehicle Passenger Tax Act, 1958	Same as Bombay Act and Rules, with an additional section on 'Environment tax'
Maharashtra Motor Vehicle Passenger Tax Rules, 1958	
Maharashtra City Taxi Rules, 2017	• Provision of App Based Taxi Permit for aggregators • Run only on clean fuel- Unleaded Petrol, CNG, LPG, EV, HEV • Other specifications like the colour of the cab, Licence of driver, Permit for the vehicle • Ply within geographical limits, Black-yellow cabs can be a part of this scheme, service to be provided 24*7, staff should be given facilities as per Motor Transport Workers Act, 1961 • Taxis registered under earlier schemes can also get attached to aggregators provided they pay the prescribed fees to the RTO
Maharashtra State Electric Vehicles Policy, 2018	• To increase the viability of EV by way of providing fiscal and non-fiscal incentives.

Act/ Policy/ Rule	Key Highlights
	• Promotion of creation of dedicated infrastructure for charging of EVs Through subsidization of investment. • To promote the establishment of Research & Development Centres and Centre of Excellence across the state. Policy Targets: a) Increase number of EV registered in Maharashtra to 5 lacs. b) To generate an investment of Rs.25,000 crores in EV, EV manufacturing and component manufacturing, battery manufacturing/assembly enterprises and charging infrastructure equipment manufacturing in the state. c) To create jobs for 1,00,000 persons.
Maharashtra State Urban Transport Policy (2017)	In Draft stage and open for final comments from Stakeholders. Emphasis on Transit oriented Development.
Hakim committee recommendations for auto - taxi fare, 2012	Currently meters for Auto-rickshaws and Black-Yellow taxis calibrated as per the recommendations of this report
Report of the Khatua Committee for determination of the fare structure of taxis and Auto Rickshaws in Maharashtra State, 2017	A comprehensive report prepared for control and operation of Para-Transit Vehicles in the State. The report was submitted in September 2017. It has fare structure for Auto-Rickshaws, Black-Yellow cabs, City cabs operated by aggregators, welfare and pension schemes for drivers, recommendations for amendment of Maharashtra City Taxi Rules 2017.
Pune Parking Policy, 2018	Sets up the vision to discourage the use of private vehicles while increasing the use of sustainable modes of transport. The city-wide parking policy will set minimum parking fees for 2-wheelers and 4-wheelers vehicles using a zone-based system utilizing digital enforcement mechanisms. Aims to achieve 80% of motorized trips by public transit by 2031; at least 50% reduction in total VKT; transform at least 10% on-street parking spaces to public open spaces or NMT infrastructure (Implementation in Progress)
Pune Pedestrian Policy 2016	Aims for better street design and traffic calming to make roads safer for pedestrians. Plans to create "Pedestrian Only" zones across the city

Act/ Policy/ Rule	Key Highlights
Pune Trenching Policy 2018	Guidelines to adopt "Trenchless Technology" so that digging the roads for laying utilities can be minimised. A new trenching-free technology will be made compulsory barring exceptional cases. To provide citizens with the highest level of infrastructure facilities.
State Urban Development Department	
Sanirna-2016/GR168/UD-16 (3 Jan 17)	Introduction of Tejaswini Buses in Mumbai, Navi Mumbai, Thane, Kalyan-Dombivli, Pune, Pimpri-Chinchwad, Nagpur cities. These buses will be entirely for women and run on green technology
Tejaswi-2017/GR42/UD-16 (24 March 17)	Allotment of INR 39.95 Cr. for Tejaswini buses
Sankirna-2011/GR74/UD16 (18 July 11)	At least 10% of Transport Budget needs to be spared for traffic control, street furniture, signage, zebra crossings and other such arrangements
Vi.Sa. Aa-2015/GR333/UD-20 (15 Sept 17)	Formation of a committee to take policy level decisions on Urban Transport issues
MUTP-3317/GR117/UD (31 March 18)	MRVC-MUTP 2A Funds distribution
MRD3313/GR130/UD7	G.R. for approval of arranging funds for MUTP-3
Panaji, Goa	
Goa Motor Vehicle Rules, 1991	• Based on Motor Vehicles Act, 1988 • Includes rules on licensing of drivers for motor vehicles, registration of motor vehicles, special rules for motorcycles used as contract carriages (motorcycle taxis are referred to as pilots in Goa)
The Goa, Daman and Diu Motor Vehicles (Taxation on Passengers and Goods) Act, 1974. Updated in 2016	Includes Levy of tax on passengers and goods,
The Goa, Daman and Diu Motor Vehicles Tax Act, 1974. Updated in 2017	Levy of tax on vehicles
Bangalore, Karnataka	

Act/ Policy/ Rule	Key Highlights
The Karnataka Motor Vehicles Rules, 1989	Rules aligning to The Motor Vehicles act 1988 and The Central Motor Vehicles Rules 1988. (Issuing of licence, Registration, Control of Traffic, etc)
The Karnataka Motor Vehicles Taxation Act 1957 (Karnataka Act 35 of 1957)	Tax to be paid by fleet owners/operators and stage carriers to the RTO
The Karnataka Motor Vehicles Taxation Rules, 1957.	
Karnataka Municipal corporation act 1976	Formation of Urban local bodies in Karnataka and their functions
The Bangalore Development Act 1976	Formation of Bangalore Development Authority (BDA) and its functions
The Bangalore Metropolitan Region Development Authority Act 1985	Formation of BMRDA and its functions
The Bangalore Metropolitan Land Transport Authority Act 2008	Formation of Bangalore UMTA and its functions
Karnataka State Electric Vehicles Policy 2017	• Special Initiatives for EV manufacturing; • Support for Charging Infrastructure; • Support for Research development and skill development; Incentives and concessions;
Bangalore Parking Policy 2012	• To effectively manage parking demand through a series of measures which include dynamic pricing of parking, congestion tax, proof of parking (vehicle-parking certificates) etc.; • Effectively manage parking supply through construction and maintenance of off-street and on-street parking lots, park and ride facilities in important transit centres and effective regulation of on-street and off-street parking etc.;

Act/ Policy/ Rule	Key Highlights
	• To design parking infrastructure keeping in view the needs of physically handicapped, non-motorized transport etc.;
Non-Motorised Transport Policy	Guidelines for Policy Framework; Detailed Project Report & Handholding; Capacity Building & Community Engagement
Chandigarh	
Chandigarh Motor Vehicle Rules 1990	Rules aligning to The Motor Vehicles Act 1988 and The Central Motor Vehicles Rules 1988. (Issuing of license, Registration, Control of Traffic, etc.)
Motor Vehicles Taxation notification 2014	Based on Punjab Motor Vehicles Taxation act, 1924
Auto/Taxi Fare Fixation Notification	Notification for fares chargeable by the different types of taxi and autorickshaw services
Haryana Urban Development Authority Act, 1977	Formation of HUDA and its functions
Punjab New Capital (periphery) Control Act, 1952	It extends to that area of the State of Punjab which is adjacent to and is within ten miles on all sides from the outer boundary of the land acquired for the Capital of the State at Chandigarh as that Capital and State existed immediately before the 1st November, 1966
The Punjab Regional and Town Planning and Development Act ,1995	Formation of GMADA and its functions
Punjab New Capital (Periphery) Control Rules, 1959	Rules for villages which come under Chandigarh (as state capital) area
Punjab Regional and Town Planning and Development (General) Rules, 1995	Rules related to the Punjab Regional and Town Planning and Development Act ,1995

Act/ Policy/ Rule	Key Highlights
Punjab Municipal Corporation Law (extension to Chandigarh) ordinance of 1994 to the Punjab Municipal Corporations Act, 1976	Formation of Chandigarh Municipal Corporation and its functions

Source: (MP Ensystems Research, 2018)

Annexure 2: Transportation Agencies and Their Roles in Selected Regions

Table 10 Regulatory/Policy Making Organisations in Urban Transportation in selected regions

Agency	Type of Organisation	Structure	Role	Financing
Pune				
Pune Mahanagar Parivahan Mahamandal Limited (PMPML)	A state transport Undertaking formed in 2007 by combining the Municipal Transports of two cities- Pune and Pimpri-Chinchwad with stakes of the respective Municipal Corporations in the ratio 60:40	PMPML has the CMD belonging to IAS. Apart from CMD, they have Mayors, Municipal Commissioners and Standing Committee Chairman of both the cities, a member from PMC standing committee (since PMC has more stakes), Pune chief RTO and Director of CIRT in their board of directors. This is followed by the general hierarchy of various departmental heads and Depot Managers	Providing commuters with a safe, affordable and convenient transportation service across the cities of Pune and Pimpri-Chinchwad	Revenue from tickets, advertisements, etc. Deficit is funded by the transport budget of the Municipal corporations of both the cities in 60:40 proportion
Pune Municipal Corporation (PMC)	Municipal Corporation formed under the Maharashtra Municipal Corporations Act 1949	As per the 74th Constitution Amendment Act (1993) and the Maharashtra Municipal Corporations Act (1949)	Preparing the comprehensive Mobility Plan for the city and various policies related to urban transportation (Bus Rapid Transit Plan,	Property tax and Local Body taxes on all the services provided

Agency	Type of Organisation	Structure	Role	Financing
			Street Design Guidelines, Parking Policy, Pedestrian Policy, Bicycle Plan, Road Development and Maintenance guidelines)	
Pune Metropolitan Development Authority (PMRDA)	Parastatal Planning and Development Authority for the Pune Metro Region with an outlook towards channelizing growth in a strategic and orderly manner. PMRDA covers entire Talukas of Pune city, Maval, Mulshi, Haveli and parts of Bhor, Daund, Shirur, Khed, Purandar and Velhe.	PMRDA has been set up as a legally empowered and a self-financing corporate body by the Urban Development Department of the Government of Maharashtra vide Notification No. PMRD 3316/Pra.Kra.54/Navi-7, dated 11th July 2016.	Developing Pune Metropolitan Region as International Premium Investment Destination. Offer optimal living facilities for citizens and excellent economic opportunities for global investors. Development of Pune Ring Road and peripheral area.	Self-financing corporate body under the Urban Development Department of Government of Maharashtra. Project based funding

Agency	Type of Organisation	Structure	Role	Financing
			Construction of Pune Metro Phase 3	
Maha Metro-Pune Metro	MAHA-METRO a Special Purpose Vehicle (SPV), a 50:50 jointly owned company of Government of India and Government of Maharashtra. Responsible for construction of all metro projects in the State of Maharashtra outside Mumbai Metropolitan Region for the smooth implementation, execution and operations.	The Secretary of Ministry of Housing and Urban Affairs (MoHUA) is the Chairman of the SPV and the Managing Director Belongs to the IAS. Other Directors belong to the Urban Development Department of the Government of Maharashtra, Pune and Nagpur Municipal Corporations, Central Railway, and MoHUA	Planning and Construction of Metro Rail Phase- 1 and 2 in Pune-	PPP model. 60% financing done by the Private Partner (30%equity and 70% debt). Balance will be done by Central Government, State Government and PMRDA
Regional Transport Office- Pune (RTO)	Regional Transport Office	Department of Transport functions under Motor Vehicle Act, 1988 of section 213. The Pune RTO was basically founded to impose the Motor Vehicle Act 1988 provisions. Transport Commissioner and Deputy	To exercise and discharge the powers and functions conferred on them under the provisions of Motor Vehicles Act,	State Government

Agency	Type of Organisation	Structure	Role	Financing
		Commissioner of Transport head the organisation.	which mainly relate to control of transport by way of grant of permits (Registration of vehicles and driving licences and Collection of MV tax).	
Pune Traffic Police	Traffic Department of the Pune City Police	ACPs for Divisions who report to Zone wise Deputy Commissioners of Police who are under the Joint Commissioner of Police (traffic).	Enforce the driving rules prescribed by the Law and RTO. Coordinate with the Municipal corporation to regulate the traffic	State Government
Maharashtra Urban Infrastructure Development Company Limited (MUIDCL)	State government owned company which promotes the Trust for Maharashtra Urban Infrastructure Fund (MUIF)	Secretary (IAS), Special Projects Urban Development Department Government of Maharashtra is the Managing Director. The board of directors consists of the secretaries from various departments related to urban development in Govt of Maharashtra and the Metropolitan Commissioner of MMR	To carry on the business activity of developing projects for urban infrastructure, whether individually or jointly, for any municipal corporation, municipal council, Government or non-Government body,	Maharashtra Urban Infrastructure Fund (MUIF) which is a Trust Fund set up by Government of Maharashtra and MMRDA to help the Urban Local Bodies and other agencies in developing

Agency	Type of Organisation	Structure	Role	Financing
			firm, corporate, trust, institution, or any other body (whether incorporated or not) in India including Mumbai Metropolitan Region.	infrastructure for promoting economic progress and improving the quality of life in the urban areas of Maharashtra. Funding is done under 3 heads- (1) Project Development Fund (2) Project Finance Fund (3) Debt Service Reserve Fund
Urban Mobility Lab	Research and advisory lab working with the city of Pune to find solutions related to Urban Mobility	Lab being set up by Rocky Mountain Institute (RMI) USA, NITI Aayog, and Government of Maharashtra with the help of Pune Municipal Corporation	Conduct research and come up with solutions by engaging all stakeholders for urban mobility in Pune	RMI, NITI Aayog
Pune Suburban Railway	Central Government organisation responsible for operation of suburban rail	Divisional Railway Manager appointed by the Railway board who reports to the GM, CR	Providing Suburban Railway Transport	Revenue from tickets, advertisements, etc. Balance is borne by the Central Government

Agency	Type of Organisation	Structure	Role	Financing
Mumbai				
Urban Development Department (Maharashtra State)	Department of State Government	Minister of Urban Development (Maharashtra State) and the Secretary of Urban Development of the state. The highest authority of all the urban planning and development authorities in the state	Ministry for Urban Development in State	State Government
Maharashtra State Road Transport Corporation	State Government Organisation for operation of inter-city bus services and connecting Talukas and villages in the periphery of the city	MSRTC has 1 Chairman and 17 Directors. Board of Directors consists of Vice Chairman and Managing Director, 9 Directors, 3 Central and State Government Representatives and 2 Labour Representatives. Each division has a divisional controller who reports to the Managing Director	Connecting every village in all talukas and districts wherever roads exist	Revenue from tickets, advertisements, etc. Balance is borne by the State Government

Agency	Type of Organisation	Structure	Role	Financing
BEST Undertaking	Transport and Electricity undertaking of the Municipal Corporation of Greater Mumbai Daily km Covered: 6.42 lakh Km	Managing director appointed by the state government belonging to IAS and the BEST committee which has elected Municipal councillors from MCGM and subject experts. Then each department has a head who reports to the MD.	Provide Bus Transport services in Brihan Mumbai area along with some parts of Thane, Navi Mumbai, and Mira-Bhayander Region	Revenue from tickets, advertisements, etc. Self-financing section of the MCGM Listed in the Budget C of the MCGM
Thane Municipal Transport	Transport Department of the Thane Municipal Corporation (neighbouring city of Mumbai). Operates a few services from Thane to Mumbai Daily km covered: 52188.8km	Head of the Department is a senior employee of the Thane Municipal Corporation. There are various sections under the transport Department.	Provide Bus Transport services in Thane region along with connectivity to neighbouring cities of Mumbai, Navi-Mumbai and Kalyan-Dombivli	Revenue from tickets, advertisements, etc. Balance is borne by the Municipal Corporation

Agency	Type of Organisation	Structure	Role	Financing
Navi Mumbai Municipal Transport	Transport Department of the Navi Mumbai Municipal Corporation (neighbouring city of Mumbai). Operates a few services from Navi Mumbai to Mumbai. Daily km covered: 1,23,228 kms	Has an administrative head who belongs to the NMMT and there are 3 main sections: Administration and Accounts traffic and support Staff Engineering	Provide Bus Transport services in Navi-Mumbai region along with connectivity to neighbouring cities of Mumbai, Thane, Kalyan-Dombivli and New Panvel	Revenue from tickets, advertisements, etc. Balance is borne by the Municipal Corporation
Mira-Bhayander Municipal Transport	Transport Department of the Mira-Bhayander Municipal Corporation (neighbouring city of Mumbai). Operates a few services from Mira-Bhayander to Mumbai	Head of the Department is a senior employee of the Municipal Corporation. There are various sections under the transport Department.	Provide Bus Transport services in Mira-Bhayander region along with connectivity to neighbouring cities of Mumbai and Thane	Revenue from tickets, advertisements, etc. Balance is borne by the Municipal Corporation
Mumbai Suburban (Central) Railway	Central Government organisation responsible for operation of suburban rail for CSMT to Khopoli/Kasara/Goregaon/Panvel; and trans-	Divisional Railway Manager appointed by the Railway board who reports to the GM, CR	Providing Suburban Railway Transport	Revenue from tickets, advertisements, etc. Balance is borne by the Central Government

Agency	Type of Organisation	Structure	Role	Financing
	harbour line from Thane to Panvel			
Mumbai Suburban (Western) Railway	Central Government organisation responsible for operation of suburban rail from Churchgate to Dahanu	Divisional Railway Manager appointed by the Railway board who reports to the GM, CR	Providing Suburban Railway Transport	Revenue from tickets, advertisements, etc. Balance is borne by the Central Government
Mumbai Rail Vikas Corporation	Public Sector Undertaking of Govt. of India under Ministry of Railways (MoR) incorporated under Companies Act, 1956 on 12th July 1999 with an equity capital of Rs. 25 crores shared in the ratio of 51:49 between Ministry of Railways and Government of Maharashtra.	Has a CMD belonging to Indian Railway Services appointed by the UPSC. Has a board of directors who are bureaucrats who belong to the Indian Railways or Government of Maharashtra. There are different divisions like Infrastructure development, finance, Projects, Rehabilitation and Resettlement, etc which are headed by each director.	Execute the projects under Mumbai Urban Transport Project (MUTP) as sanctioned by Ministry of Railways. The Corporation will execute a number of suburban rail improvement projects for enhancing suburban rail transportation capacity thereby reducing the overcrowding and meeting future traffic requirements. The	Central Government, State Government, World Bank

Agency	Type of Organisation	Structure	Role	Financing
			corporation will also be involved in the planning and development of Mumbai Suburban Rail system.	
Mumbai Metropolitan Region Development Authority (MMRDA)	Parastatal planning authority established in accordance with the Mumbai Metropolitan Development Act, 1974, on 26th January 1975.	CM of Maharashtra is the Chairman of the authority. The authority has bureaucrats from the state government's departments related to urban development and the Mayors/heads of the Urban Local bodies in the MMR and a few nominated MLAs. The Executive committee is responsible for the execution of all projects and the chief secretary of Maharashtra (IAS) chairs this committee. The Metropolitan Commissioner (IAS) is the head of MMRDA. Apart from this, the executive committee consists of the bureaucrats leading various state government's	Conceive, promote and monitor the key projects for developing new growth centres and bring improvement in sectors like transport, housing, water supply and environment in the Region. -Preparation of Regional Development Plans -Providing financial assistance for	State Government and project-based financing

Agency	Type of Organisation	Structure	Role	Financing
		departments related to urban development, the Municipal commissioner of Mumbai and the MD of CIDCO (which is the city and industrial development corporation of Maharashtra).	significant regional projects -Providing help to local authorities and their infrastructure projects -Coordinating execution of projects and/or schemes in MMR -Restricting any activity that could adversely affect appropriate development of MMR, etc.	
Mumbai Metro Rail Corporation Ltd	A Joint venture company of the Government of Maharashtra and Government of India for the execution of Line-3 of the Mumbai Metro Project which is the only and completely	Secretary (IAS) ministry of Housing and Urban Affairs (MoHUA) chairs the Board of directors and the senior bureaucrats from the MoHUA and Govt of Maharashtra Urban Development Department comprise the board of Directors. The state govt appoints a Managing Director (IAS). There are departments namely- Administration,	Nodal agency responsible for the implementation of Mumbai Metro Line–3(MML-3) project.	State Government, Central Government, JICA (Japan International Co-operation Agency)

Agency	Type of Organisation	Structure	Role	Financing
	underground metro in Mumbai	Planning, Project, systems, Land, finance, rehabilitation and resettlement, human resources, and Public Relations under the MD		
Mumbai Metro One Pvt Ltd	PPP organisation construction and operation of the Line 1 of the Mumbai Metro. Reliance Infra holds 69% of the equity share capital of MMOPL, while MMRDA holds 26% and remaining 5% is held by Veolia Transport RATP Asia, France, through a separate joint venture company and shall undertake operations & maintenance of the project for an initial period of 5 years	Reliance Infra holds 69% of the equity share capital of MMOPL MMRDA holds 26% Veolia Transport RATP Asia, France, holds 5% and the Board of directors are as per this share with the Managing Director being from the Reliance Infrastructure	Construction, operation, and maintenance of Mumbai Metro Line 1 on BOOT basis for 35 years	The 1st Metro project in the country financed by Indian banks. The Project has been financed by a consortium of banks led by Syndicate Bank. The other banks in the consortium are Indian Bank, State Bank of Hyderabad, Bank of Maharashtra, IDBI Bank and India Infrastructure Finance Company (UK).

Agency	Type of Organisation	Structure	Role	Financing
Mumbai Monorail (MMRDA)	A department of MMRDA that is responsible for execution and operation of Mumbai Monorail	Comes under the Transport and Communications department of the MMRDA	Operate the Monorail which acts as a transit feeder system for suburban rail at Wadala, curry-road and Chembur stations	MMRDA
Regional Transport Office- (RTO)	Regional Transport Office	Department of Transport functions under Motor Vehicle Act, 1988 of section 213	To exercise and discharge the powers and functions conferred on them under the provisions of Motor Vehicles Act, which mainly relate to control of transport by way of grant of permits (Registration of vehicles and driving licences and Collection of MV tax).	State Government
Traffic Police	Traffic Department of the Mumbai City Police	ACPs for Divisions who report to Zone wise Deputy Commissioners of Police who are under the Joint Commissioner of Police (traffic)	Enforce the driving rules prescribed by the Law and RTO. Coordinate with the	State Government

Agency	Type of Organisation	Structure	Role	Financing
			Municipal corporation to regulate the traffic	
Urban Development Department (Maharashtra State)	Department of State Government	Minister of Urban Development (Maharashtra State) and the Secretary of Urban Development of the state. The highest authority of all the urban planning and development authorities in the state	Ministry for Urban Development in State	State Government
Municipal Corporation of Greater Mumbai	Urban Local Body	Mayor- Elected Representative Municipal commissioner- IAS Standing Committee made up of Elected Representatives BEST Committee- for transport (has elected representatives and Subject experts and BEST Managing Director) Structure as per the Bombay Municipal Corporation act 1888	Urban Local Body- Municipal Corporation Works as oer the 74th Constitution amendment act and the Bombay Municipal Corporation Act 1888	Urban Local Taxes and currently GST compensatory package from State Government
Maharashtra Urban Infrastructure Development Company	State government owned company which promotes the Trust for Maharashtra Urban	Secretary (IAS), Special Projects Urban Development Department Government of Maharashtra is the Managing Director. The board of directors consists of the secretaries from various	To carry on the business activity of developing projects for urban infrastructure, whether individually or	Maharashtra Urban Infrastructure Fund (MUIF) which is a Trust Fund set up by Government of

Agency	Type of Organisation	Structure	Role	Financing
Limited (MUIDCL)	Infrastructure Fund (MUIF)	departments related to urban development in Govt of Maharashtra and the Metropolitan Commissioner of MMR	jointly, for any municipal corporation, municipal council, Government or non-Government body, firm, corporate, trust, institution, or any other body (whether incorporated or not) in India including Mumbai Metropolitan Region.	Maharashtra and MMRDA to help the Urban Local Bodies and other agencies in developing infrastructure for promoting economic progress and improving the quality of life in the urban areas of Maharashtra. Funding is done under 3 heads- (1) Project Development Fund (2) Project Finance Fund (3) Debt Service Reserve Fund
Helicopter Operating Agencies				

Agency	Type of Organisation	Structure	Role	Financing
Ferry service Operating Agencies				
Goa				
Department of Transport	Department in State Government		Enforcement of the Motor Vehicles Act and Rules Issue of licenses Granting regular and temporary permits to vehicles Road Safety measures a Control of Automobile Pollution	
Directorate of Municipal Administration/ Urban Development	Department in State Government		The department provides services at grass root level, taluka level, sub divisional level and at district level. It provides administrative control and supervision over all	

Agency	Type of Organisation	Structure	Role	Financing
			the Municipals in the state.	
Goa State Urban Development Agency GSUDA	Society registered under the Societies Registration Act 1860. It is under the Administrative control of the Directorate of Municipal Administration, Urban Development Department, Government of Goa		Nodal Agency for co-ordination, monitoring and implementation of programs.	Implements centrally sponsored programs of the MoUD and MHUPA
Town and Country Planning TCP	Department in State Government		Prepares Regional plan for Goa and Traffic & Transportation Plan Development Plans for areas around Railway stations	
Imagine Panaji Smart City Development Limited IPSCDL	Wholly owned Government Company and Special Purpose Vehicle (SPV) of the Government of Goa	IPSCDL has a CEO. On its board- Chairman is Secretary, Urban Development Dept of Goa. Other board members include Finance Secretary, CCP Commissioner, Chief	Set up under Smart City Mission, currently developing a Comprehensive Urban Mobility Plan	IPSCDL is the State Mission Directorate for AMRUT, State Level Nodal Agency and the State Mission

Agency	Type of Organisation	Structure	Role	Financing
		Engineer- PWD, Undersecretary MoHUA		Management Unit for Smart City Mission
Kadamba Transport Corporation KTC	State Transport Undertaking established in 1980 under Companies Act, 1956		Providing safe, reliable, comfortable, punctual effective & efficient passenger to public	Revenue from fares, Subsidy for concessional fares, grant-in-aid for school buses (Bal Rath)
Corporation of the City of Panaji CCP	Municipal Corporation under Urban Development Department	IAS Officer is Municipal Commissioner Accounts and Engineering Sections Corporators are elected members		Income from house tax, vehicle tax, other taxes and fees

Agency	Type of Organisation	Structure	Role	Financing
Urban Mass Transport Corporation UMTC	Urban transport consultancy firm Formed in partnership between Ministry of Housing and Urban Affairs (MoHUA), Government of India (GoI), Government of Andhra Pradesh (GoAP), Andhra Pradesh State Road Transport Corporation (APSRTC) and Infrastructure Leasing and Financial Services Limited (IL&FS)	CEO is from IL&FS. Chairman is MoHUA Secretary. Other members include officials from IL&FS, Andhra Govt	Appointed by IPSCDL to create Comprehensive Mobility Plan for the state of Goa and Parking Policy and Parking Master Plan for Panaji city	
Bangalore				
Directorate of Urban Land Transport	Coordinate planning and implementation of Urban Transport projects and programs.	The directorate comes under the state urban development department and has a joint director for administration and a special office for technical wing	The Directorate is responsible for overseeing all the urban land transport initiatives in Urban/ Local Planning Areas of Karnataka and	State Government and State Urban Transport Fund (SUTF)

Agency	Type of Organisation	Structure	Role	Financing
			administers the State Urban Transport Fund (SUTF)	
Bangalore Metro Rail Corporation Limited (BMRCL)	BMRCL is a joint venture of Government of India and Government of Karnataka is a Special Purpose Vehicle entrusted with the responsibility of implementation of Bangalore Metro Rail (Namma Metro) Project.	BMRCL has 2 functional directors- one for Project and Planning, and other for rolling stock, signalling and electrical. Both are subject experts with an experience of working for the railways. The board of directors consists of senior bureaucrats from the MoHUA, Railways, Delhi metro, BMTC, and the secretaries form various departments of government of Karnataka	Planning, Construction and operation of Metro Rail in Bangalore	Phase 1: The Central and State Government funded 58.91% of the total project cost. The remaining 41.09% was secured through loans from domestic and foreign financial institutions. Phase 2 is funded by partially acquiring loans from foreign funding agencies
Urban Development Department (UDD)	Department of State Government	Minister of Urban Development (Karnataka State) and the Secretary of Urban Development of the state. The highest authority of all the urban planning and development authorities in the state	Ministry for Urban Development in State	State Government

Agency	Type of Organisation	Structure	Role	Financing
Bruhat Bangalore Mahanagara Palike (BBMP)	Urban Local Body	Mayor- Elected Representative Municipal commissioner- IAS Minister for Bangalore Development- MLA Structure as per The Karnataka Municipal Corporations Act 1976	Urban Local Body- Municipal Corporation	Urban Local Taxes and currently GST compensatory package from State Government
Bangalore Development Authority (BDA)	The Bangalore Development Authority (BDA) came into being under a separate Act of the State Legislature- the BDA Act 1976. This Authority was formed to combine the Planning functions of the City Planning Authority and the developmental functions of the erstwhile City Improvement Trust Board.	The BDA comes under the urban Development department of the state govt. The chairman of the authority is an MLA and the commissioner belongs to the IAS. The secretary of the authority belongs to the state administrative services and the board consists of the members from engineering, town planning, architecture, finance departments of the state government, BMTC, and BBMC	Town planning	Property tax, state government

Agency	Type of Organisation	Structure	Role	Financing
Bangalore City Traffic Police (BTP)	Traffic Department of the Bangalore City Police	ACPs for Divisions who report to Zone wise Deputy Commissioners of Police who are under the Additional Commissioner of Police (traffic).	Enforce the driving rules prescribed by the Law and RTO. Coordinate with the Municipal corporation to regulate the traffic	State Government
Bangalore Metropolitan Region Development Authority (BMRDA)	The Bangalore Metropolitan Region Development Authority (BMRDA) is an Authority established under the Bangalore Metropolitan Region Development Authority Act, 1985 (Karnataka Act No. 39 of 1985).	The Metropolitan commissioner belongs to the IAS, under whom there is an additional metropolitan commissioner to look after the administration and a metropolitan planner to look after the technical departments which are headed by different directors	Planning, coordinating and supervising the proper and orderly development of the area within the Bangalore Metropolitan Region and allied matters.	State Government
Karnataka Urban Infrastructure Development & Finance Corporation (KUIDFC)	Public limited company under the Companies Act, 1956 on 02.11.1993. Nodal Agency of the State for implementation of various urban infrastructure	The Company is managed by Managing Director from the IAS cadre assisted by a team of professional and officers from the state cadre under the overall superintendence and control of the Board of Directors.	To prepare, formulate and implement projects, schemes and programmes relating to infrastructure development in the urban areas of the	Government of India

Agency	Type of Organisation	Structure	Role	Financing
	development projects in the state. Secured the status of State Level Financial Institution (SLFI) from the Government of India.	The govt of Karnataka is the majority shareholder in the trust followed by the chairman of BDA. The Principal Officers of the Government of Karnataka and the Chief Executive officers of developmental authorities established by the Government of Karnataka hold 1 share each.	state and to provide technical, financial, consultancy and other assistance to urban bodies for development, schemes, including implementation of master plans.	
Bangalore Metropolitan Transport Corporation (BMTC)	The BMTC is the sole public bus transport provider for Bengaluru, serving urban, sub-urban and rural areas. BMTC is committed to provide quality, safe, reliable, clean and affordable travel.	The Minister of Transport Govt of Karnataka is the chairman of the BoD. The Managing Director belongs to the IAS and the board has senior officers from the government of Karnataka and MoRTH	Provide Bus Transport services in Bangalore Metropolitan area and promote research in urban transport	Revenue from tickets, advertisements, etc. Balance is borne by BBMC

Agency	Type of Organisation	Structure	Role	Financing
Bangalore Metropolitan Land Transport Authority (BMLTA)	BMLTA was created vide Government Order No. UDD 134 BMR 2006 (2) Bangalore 09.03.2007 as per the recommendation of the National Urban Transport Policy (NUTP, 2006) to set up unified Urban Transport Authorities (UMTAs) in million plus cities.	The composition of the authority is as per BMLTA Acct 2008. BMLTA consists of a Commissioner, Member – Finance, Urban Transport Planning, Traffic Management, Environment Management, Land Use integration; secretary – Urban Development Department; Commissioner – BDA; Metropolitan Commissioner - BMRDA; Commissioner – BBMP; Managing Director – BMTC; Managing Director – BMRCL	To co-ordinate all land transport matters in the BMR; prepare detailed Master Plan for Transport Infrastructure based on the comprehensive Traffic and Transport Study for Bangalore; oversee implementation of all transportation projects; appraise and recommend transportation and infrastructure projects for bilateral / bilateral Central assistance; function as empowered Committee for all Urban Transportation Projects; initiate action for a regulatory	State Government

Agency	Type of Organisation	Structure	Role	Financing
			framework for all land transport systems in BMR; initiates steps, where feasible for common ticketing system.	
Regional Transport Office-Bangalore (RTO)	The Department of Transport was constituted by Government Order No. T6811:6865 RT :53-54:10 Dated 03-03-1955 vide Notification 4285-98 MV-23-56-57 Dated 27-08-1956.	Commissioner for Transport and Road Safety is the head of the department and he is assisted by the following officers- Additional Commissioners for Administration, Enforcement, a Secretary, Joint Commissioner for Transport (Environment & E-Governance), Legal Adviser, and financial advisor.	The primary thrust areas of the Department are enforcement of Motor Vehicles Act and Rules and collection of Tax. The Department is mainly responsible for regulation of the use of Motor Vehicles in the State and collection of tax on Motor Vehicles, Road Safety, Control of Air and Noise pollution in accordance with the provisions of various Acts and Rules.	State Government

Agency	Type of Organisation	Structure	Role	Financing
Chandigarh				
Chandigarh Transport Undertaking	State Transport Undertaking	Home Secretary of Chandigarh UT is the Director of Transport. Under him is the general manager and different divisional managers	Provide bus services to the general public within the city, Sub Urban area and in adjoining States i.e. Punjab, Haryana, Delhi, Himachal Pradesh, J& K, Uttar Pradesh, Rajasthan etc.	Traffic revenue & Chandigarh UT Administration
Chandigarh Union Territory Administration	UT government	The Administrator of the state is appointed by the Central Government. The advisor to the administrator is an IAS officer. Under them are the principal secretaries and other secretaries belonging to the IAS who head various government departments	Union Territory Administrative body	Central government
Municipal Corporation, Chandigarh	Municipal Corporation	Municipal Commissioner belongs to the IAS. The joint municipal commissioners and Additional municipal commissioners are in charge of various departments and belong to the IAS or PCS (Provincial	Municipal corporation (urban Local body) formed under Punjab Municipal Corporation Law (extension to Chandigarh) ordinance	ULB taxes (like land tax, water tax, etc.) and funds from UT administration

Agency	Type of Organisation	Structure	Role	Financing
		Civil Services) Under them are various heads of the departments and chief engineers	of 1994 to the Punjab Municipal Corporations Act 1976	
Department of Information Technology Chandigarh	Department of UT administration for administration of Rajiv Gandhi Chandigarh Technology Park	The Secretary, Special Secretary, and Director of Information technology are appointed by the UT administration and belong to IAS. Under them are various departments and Projects	Provide a platform engaging world's well-known brains, and the professional bodies like NASSCOM, Indian Angel Network, The Indus Entrepreneur, to prepare a road map for the development of Chandigarh, Mohali and Panchkula region.	PPP
Transport Department Chandigarh Administration	The Transport Department of Chandigarh Union Territory; Has two main divisions- Registering and Licensing authority and State Transport authority	Secretary of Transport is appointed by the UT administration who belongs to IAS. Under him are the heads of two sections 1. Secretary State Transport Authority (IAS or PCS or HCS) 2. Dy Commissioner (IAS or PCS or HCS) Licensing and registration authority	State Transport Authority: Issuance of permits Licensing and registration authority: Enforcement of Motor Vehicles Act and Rules and collection of Tax; Regulation of the use of	UT Administration

Agency	Type of Organisation	Structure	Role	Financing
			Motor Vehicles in the State and collection of tax on Motor Vehicles, Road Safety, Control of Air and Noise pollution in accordance with the provisions of various Acts and Rules.	
Chandigarh Traffic Police	Traffic Department of the Chandigarh UT Police	ACPs for Divisions who report to Zone wise Deputy Commissioners of Police who are under the Additional Commissioner of Police (traffic).	Enforce the driving rules prescribed by the Law and RTO. Coordinate with the Municipal corporation and UT administration to regulate the traffic	UT Administration
Haryana Urban Development Authority (HUDA)	Parastatal Development authority formed under the Haryana Urban Development Authority Act, 1977 to take over work, responsibilities hither to being handled by individual	Minister in Charge of Town and country planning is the chairman of the Board of Directors and the Chief Secretary of the State (IAS officer is the vice-chairman); the other board members consist of senior officers from various state government departments that are	Promote and secure development of urban areas in a systematic and planned way with the power to acquire and sell property	State Government

Agency	Type of Organisation	Structure	Role	Financing
	Government departments.	related to urban development. There are zonal administrative heads for each of the 5 zones		
Greater Mohali Area Development Authority (GMADA)	Parastatal Development Authority	Chief Minister of Punjab is the chairman and an IAS officer is the vice-chairman. The chief administrator, dy. Chief administrators and heads of various departments are appointed by the Punjab State Government and belong to IAS or PCS Three committees have been constituted- Executive Committee, Planning and Design Committee, Budget and account scrutiny committee	Executive Committee: To approve the selection of Urban Estates, development of areas and new townships Planning and Design Committee: Scrutinize proposals for declaring planning areas and preparation of Regional Plans, Master Plans and Town Development Budget and Accounts Scrutiny Committee: Scrutiny of budget proposals and annual statement of accounts including balance sheet	Punjab State Govt

Agency	Type of Organisation	Structure	Role	Financing
Chandigarh Smart City Development Corporation	SPV	Head (Managing Director) is an IAS officer; Egis India is the Project Management Consultant for the project	Development of Chandigarh as a smart city under the Smart cities mission	Central government and Project based
Punjab State Transport; Punjab Regional Transport Office; Punjab Traffic Police			Areas of Chandigarh Capital Region, which come in Punjab	
Haryana State Transport; Haryana Regional Transport Office; Haryana Traffic Police			Areas of Chandigarh Capital Region, which come in Haryana	
Chandigarh Urban Lab	Private non-profit	Led by Urban Design and Planning team from the University of Washington, USA. Collaborations with local academic and research organizations	Forum on contemporary Indian architecture and urbanism	Private

Source: MP Ensystems Research, 2018

Annexure 3: Reports on Urban Mobility in Selected Regions

The table below lists some of the recent important reports on urban mobility in the selected regions.

Table 11 Reports on Mobility in Selected Regions

Plan/ Report	Description	Prepared by
Pune		
Comprehensive Mobility Plan (2008)	Address traffic growth of all modes of transportation and suggest a direction for multi-modal transport system of Pune by emphasising on sustainable modes	Wilbur Smith Associates with IL&FS
Smart Mobility Plan & Public Transport Enhancement	To improve the ability of the public transport system to meet transit demand. Introduction of common Mobility (MI) card; transport command and control centre; enabling buses with GPS; Introduce "Smart Mobility", tendering for 500 Electric Buses and 450 CNG buses	PMPML, CIRT, KPIT
Rainbow BRT (Bus Rapid Transit)	16km stretch operational in Pune and 22km in Pimpri Chinchwad region; more 52.8km in Pune and 90km in PMR planned.	PMPML-Rainbow BRT, PMC, PCMC
Transit-oriented development (TOD) Plan 2018	Pune city recently demarcated a TOD Zone in its Development Plan and work has been initiated across 10 acres	ITDP, PMC

Urban Street Design Guidelines, Pune	Pilot program going on that currently that covers about 30 kilometres of road. Key Plan- redesigning 400km of roads for walkability	ITDP, Pedestrians First
Comprehensive Bicycle Master Plan 2017	Plans to create 824 kilometres of dedicated bicycle track and aims to achieve 25% of trips by bicycle. Currently working with three private vendors operating in Pune	PMC and MoHUA
High capacity mass transit route (HCMTR) as per 1987 DP	The 37.2 km 6-lane (2 for BRT and 4 for other vehicles) route will connect almost 60 arterial and main city roads to an inner ring road which will ease traffic congestion in the city. PMC has appointed a financial consultant for the project at a cost of Rs 63 lakh and land acquisition is in progress	PMC
Pune Metro network Plan	To reduce traffic congestion and provide connectivity to commuters with an estimated daily ridership of 6 lakh in 2021. Phase 1: PCMC-Swargate Phase 2: Vanaz Ramwadi 31 km across two metro lines to be completed by 2021 Phase 3: Hinjewadi-Shivaji Nagar- 23.3 kilometres have been approved for construction	Phase 1 and 2: Maha Metro Phase 3: PMRDA
Area Based Development- Electric Rickshaws for mobility in ABB area	Pune is aiming to deploy electric rickshaws to improve last-mile connectivity, under the Smart Cities Mission by deploying 4000 e-rikshaws. This proposal is currently put on hold	Pune Smart City Development Corporation

Multi Modal Transport Integration Plan, 2017	Aims to integrate various modes of transport- Metro, BRT, Suburban Rail, intercity buses and Public bicycle sharing system to facilitate seamless, efficient mobility experience Maha Metro has allocated funds	Maha Metro
Mumbai		
Mumbai Metro Master Plan	Provide a rail based mass transit facility to people residing in the areas that are not connected by existing Suburban Rail System so as to enable them to reach the stations within the distances of ½ to 1 kilometre. Line 1: Versova-Andheri Ghatkopar (11.40km Elevated- operational) Line 2A: Dahisar to DN Nagar (18.59km Elevated) Line2B: DN Nagar-Mandale (23.64km Elevated) Line 3: Colaba-Bandra-SEEPZ (33.5km Underground) Line 4: Wadala-Kasarvadavali (32.32km Elevated) Line 5: Thane-Kalyan-Bhiwandi (24.9km Elevated) Line 7: Andheri East - Dahisar East (16.475km Elevated) Line 9: Andheri to CSIA and Dahisar to Mira Bhayander (extension of line 7 from both ends) Monorail Phase 1: Chembur-Wadala Depot (8.93km operational) Monorail Phase 2: Wadala Depot-Gadge Baba Chowk (11.20km)	MMRDA

Mumbai Trans-Harbour Link (MTHL)	Facilitate decongestion of the island city by improving connectivity between Island city and main land (Navi Mumbai) 21.8km Link road connecting Sewri (Mumbai side) to Chirle (Navi Mumbai side)	MMRDA Financing by JICA
MTHL-Metro Link	Metro corridor from Prabhadevi to Sewri and further to the Mainland through Navi Mumbai to a suitable Location on the Panvel-Pen section having interchange stations and facilities with the existing and proposed rail system. 49.60 km metro with Underground (3.95km), Elevated (5.67km), Bridge over the sea (16.16km) and at grade (29.98km)	MMRDA
Mumbai Urban Transport Project (MUTP)	Improve traffic and transportation situation in MMR and Institutional development and strengthening. Jogeshwari-Vikhroli Link Road (JVLR) and Santacruz-Chembur Link Road (SCLR) constructed. Some rail over bridges constructed, Area Traffic control system for island city, Station Area Traffic Improvement Scheme (SATIS) for 6 stations, 644 eco-friendly buses procured, Improvement of operation of Railways etc	Government of Maharashtra and World Bank MMRDA, Western Railway, Central Railway, BEST, MCGM
MUTP-II	Improvement of Suburban-Rail transit conditions in Mumbai	GoM and GoI through MMRDA and Mumbai Rail Vikas Corporation
MUTP-III	Improvement of Suburban-Rail transit conditions in Mumbai	GoM and GoI through MMRDA and Mumbai Rail Vikas Corporation

MUTP-3(A)	Improvement of Suburban-Rail transit conditions in Mumbai	GoM and GoI through MMRDA and Mumbai Rail Vikas Corporation
Setting up of National Mass Transit Training and Research Institute (NaMTTRI)	Assist in the field of Public Transportation and Science. The departments include- Public Transportation; Inter-modal Transportation; Transportation Safety; Transportation for Persons with disabilities; Intelligent Transportation Systems (ITS) Environmental Sustainability; Traffic and Transportation Information centres; Capacity building and Training in Public Transportation	Government of India Department of Transportation; MMRDA; Federal Transit Administration Department of Transport (USA)
Comprehensive Transport Study (CTS), 2008	Assist in establishment of Unified Mumbai Metropolitan Transport Authority (UMMTA). Updating the schemes in MMR and development plan of the Urban Local Bodies (ULB) based on Transportation Strategy. Proposed to implement the 435 kms Metro network, 1740 kms Highway network and 248 kms suburban railway network by 2031 in a planned and phased manner as per availability of fund.	MMRDA
Integrated Ticketing System (ITS) in MMR	Common ticketing platform for WR, CR, BEST, TMT, NMMT, KDMT, metros, monorail, BRTS, Water ways	MMRDA
Interstate Bus Terminal	Under planning stage. MMRDA suggests locating the terminal at Wadala Truck Terminal; Mumbai CMP suggests having it at 4 octroi posts	MMRDA MCGM
Unified Mumbai Metropolitan Transport Authority	To facilitate the immense need of integration & coordination among all the concerned divisions & organizations involved in transportation of Mumbai	MMRDA, NUTP

Mitigation Policy Packages for Transport Sector - Mumbai Metropolitan Region (May 2017)	Presents the literature review of the policy approaches for mitigation in the transport sector and elaborates on the existing and proposed policies that can aid the process of mitigation in MMR. The report further emphasises on the selected mitigation policy packages feasible in the context of MMR, their incorporation in the Travel Demand Model and evaluation of impacts. Emphasizes Integrated Land Use and Transport Policy, Transport Infrastructure Development, and Travel Demand Management	IIT Bombay
Deloitte City Mobility Index- Mumbai 2017	Points out- - Vulnerability of the transport network to the external environment—the chronic breakdown of the system during the monsoon season can cause more than US$500 million worth of economic loss annually - Deteriorating road infrastructure and absence of separate bus lanes causing congestion and accidents - Increasing burden on commuter rail, with trains on average packed to 2.6 times their capacity	Deloitte MCS
Coastal Road	Road Project for connecting Marine lines to Kandivali	MCGM
Comprehensive Mobility Plan for Mumbai 2016	Prioritize public transport, have dedicated bus lanes, levy congestion charges and higher parking charges	MCGM & LEA consultants

Bangalore		
Comprehensive Traffic and Transportation Study (CTTP) for Bangalore	Goals: i) Development of transportation network to achieve convenient and cost-effective accessibility to places of employment and education for the next 20 years; ii) Optimal utilization of funds and human resources.	RITES
Guidelines for Road Safety Audit	Guidelines for Road Safety Audit	Directorate of Urban Land Transport, Karnataka
Guidelines for evaluation of city bus service	Guidelines for evaluation of city bus service	
Junction design guidelines	Junction design guidelines	Document not available online but a peer reviewed journal has published
Guidelines for planning and implementation of pedestrian infrastructure	These guidelines are targeted for use by all local bodies and municipalities in Karnataka dealing with pedestrian or roadway infrastructure.	Directorate of Urban Land Transport, Karnataka
Bangalore Mobility Indicators for - 2011	Provide trend information from which implications for transportation can be drawn or from which transportation policy and investment decisions are made. Provide a basis for comparisons among metropolitan sub-areas. Provide the public with a sense of whether system performance is improving or getting worse over time. These indicators help the government in policy decision making.	Urban Mass Transit Company Limited for Directorate of Urban Land Transport, Karnataka
Bangalore Mobility Indicators for 2008		Wilbur Smith for Directorate of Urban Land Transport, Karnataka
Bangalore Mobility Indicators for - 2015		

NMT Policy	Guidelines for Policy Framework; Detailed Project Report & Handholding; Capacity Building & Community Engagement	Directorate of Urban Land Transport, Karnataka
Cycle stand designs	Design Document for construction of cycle stands on streets to promote NMT	Directorate of Urban Land Transport, Karnataka
Panaji		
Comprehensive Mobility Plan for Goa and Parking Master Plan for Panaji	Surveys currently under way, including primary data collection through traffic surveys, roadside interviews, traffic volume count and passenger opinion surveys, and extensive household surveys	Imagine Panaji Smart City Development Limited
Revised City Development Plan for Panaji 2041	Overall development plan for Panaji, with a section reviewing traffic and transportation in the city	CRISIL
Panaji Smart City Proposal	Includes data on transportation conditions in the city	Corporation for the City of Panaji
Chandigarh		
Chandigarh Master Plan	Development Plan of Chandigarh	Chandigarh UT Administration
New Chandigarh Master Plan	Development plan of New Chandigarh- which is in the north east of GMADA region, south of the Shivalik range.	GMADA
New Chandigarh Infrastructure	Roads and Metro plans for New Chandigarh	GMADA
New Chandigarh Eco-city	Plan for upcoming township at Mullanpur	GMADA
New Chandigarh Medi-city	Health zone in new Chandigarh	GMADA

New Chandigarh Education city	Educational hub in new Chandigarh	GMADA
Feedback on Gains from Seoul 2013 Capacity Building Programme	Key Urban Transport Policies / Models learnt from Seoul workshop and implemented or under implementation in Chandigarh	Chandigarh Administration
Smart Urban Mobility Solutions in Chandigarh	Report / Discussion on Smart Urban Mobility Solutions in Chandigarh	My Gov
Chandigarh Metro	Execution of Chandigarh Metro project by Greater Chandigarh Transport Corporation (GCTC)	DMRC
Chandigarh Pedestrian plan		
Chandigarh Cycling plan		

Source: MP Ensystems Research, 2018

Annexure 4: Questionnaire for International Case Studies

Table 14: Sample set of questions to be administered to International Transport Regulators

Sr no.	Questions
1	Name of the organisation
2	Name and designation of the respondent
3	What are the modes of transport provided by the organisation?
4	Does it have a monopoly in providing these services?
5	Was the organisation formed under specific legislation?
6	Governance structure at your organisation
7	Is the organisation under the jurisdiction of a ministry or government agency?
8	How is the organisation funded?
9	How is the budget allocation process carried out?
10	Does the organisation receive subsidies or VGF?
11	What are the major cost heads?
12	What is the process of setting fares?
13	How does the organisation coordinate with other transport and planning related agencies?
14	Information on transport service users, volumes handled
15	How are the organisation's services connected to para transit services?
16	What are the ways in which the organisation's transportation services are connected with non-motorised transport
17	What are the ways in which consumers can provide feedback to the organisation?
18	Does the organisation conduct outreach to promote sustainable transportation?
19	How does it measure the success of these outreach efforts?
20	Does the organisation measure the impact of its services on air quality?
21	Does the organisation measure its carbon footprint?
22	What is the organisation's role in urban planning?

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