Proceedings

of

UMI 2024

(Urban Mobility India Conference and Expo -2024)

INSTITUTE OF URBAN TRANSPORT (INDIA)

Standardization and Optimisation of Urban Transport Solutions

October 25 – 27, 2024, Mahatma Mandir Convention Centre, Gandhinagar, Gujarat

PREFACE

The National Urban Transport Policy (NUTP), 2006 of the Government of India, inter-alia, lays strong emphasis on building capabilities at the state and city level to address the problems associated with urban transport and lays down the guidelines for developing sustainable urban transport systems as well. As part of the NUTP enunciations, the Ministry of Housing and Urban Affairs (MoHUA), Government of India has taken the initiative to organize an annual Conference-cum-Exhibition on Urban Mobility India (UMI) to disseminate information, facilitate exchange of ideas and provide update on best urban transport practices.

The 17th Urban Mobility India (UMI) Conference 2024 was organized by the MoHUA during 25– 27 October, 2024 at the Mahatma Mandir Convention Centre, Gandhinagar, (Gujarat) with focus on the theme "**Standardisation and Optimisation of Urban Transport Solutions**". The conference was structured into one Plenary Session, one Conclave, 8 Technical Sessions and 9 Round Table Discussions besides Inaugural and Valedictory sessions. In addition 8 sessions of Research Symposium were also organized for students and researchers.

Day wise theme based specific urban transport issues were deliberated on Harmonising standards for optimising urban mobility in Indian context, integration of modes in improving urban mobility, multilateral and bilateral funding in the context of Make in India policy, leveraging data for transport planning, E-Bus Eco-System, benchmarking metro system, DPI framework for E-Mobility, innovations in transport financing, gender issues in urban mobility, clean air cities for effective urban transport, streamlining urban freight, urban transport solutions in small and medium cities, 15 minutes cities for sustainable urban mobility, mobility system in core area of cities, role of PPP in transport infrastructure, etc. About 1,500 delegates registered in the conference comprising of senior officers from the centre, state Governments, union territories, Managing Directors of metro rail companies, urban transport experts and planners from various states and UTs, as well as foreign delegates and experts from 17 countries, academia from India and abroad participated. All the sessions had presentations from eminent experts in the field and revolved around the live case studies in India and across the world. The sessions were lively and interactive.

In the Valedictory Session, awards for excellence in urban transport/ best practice projects were given to the winning States/ UTs and cities by Shri Manohar Lal Khattar, Hon'ble Minister, Ministry of Housing and Urban Affairs, Government of India in the following 12 categories.

No.	Award Category	Winner	
		City	Organisation
1	City with the Most Sustainable Transport System	Kochi	Kochi Metro Rail Limited
2	City with the Best Public Transport System	Bhubaneshwar	Capital Region Urban Transport (CRUT)
3	City with the Best Non-Motorized Transport System	Srinagar	Srinagar Smart City Ltd.
4	City with the Best Safety and Security System & Record	Gandhinagar	Gandhinagar Municipal Corporation
5	City with the Best Intelligent Transport System (ITS)	Surat	Surat Municipal Corporation
6	City with the Most Innovative Financing Mechanism	Jammu	Jammu Smart City Ltd.
7	City with Best Record of Public Involvement in Transport	Bengaluru	Bangalore Metro Rail Corporation Ltd
8	City with the Best Freight Transport System	No Entries	-
9	City with the Best Green Transport Initiative	No recommendation	-
10	Metro Rail with the Best Multimodal Integration	Bengaluru	Bangalore Metro Rail Corporation Ltd
11	Metro Rail with the Best Passenger Services and Satisfaction	Mumbai	Mumbai Metro One Pvt. Ltd.
12	Running Trophy for the State / UT, which has Implemented Best Urban Transport Projects during the previous year	No recommendation	-

The conference was well attended and appreciated by the participants and sponsors. Proceedings and outcome of the conference are presented in this document. Detailed presentation of technical papers, UMI photos and proceedings of the conference are available at www.urbanmobilityindia.in.

(Jaideep)
Officer on Special Duty (UT) & Ex-Officio Joint Secretary
Ministry of Housing & Urban Affairs
Govt. of India

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Introduction

Urban Mobility India Conference and Expo, an annual mega event of the Ministry of Housing and Urban Affairs, Government of India, provides an excellent platform to the policy makers, professionals, industry and other stakeholders in the area of urban transport to deliberate upon and share the national and international experiences on current urban transport issues and emerging trends in the field. This year the 17th UMI 2024 Conference and Expo was held during 25th – 27th October 2024 at the Mahatma Mandir Convention Centre, Gandhinagar, (Gujarat) with focus on the theme "Standardisation and Optimisation of Urban Transport Solutions". It was structured into one Plenary Session especially for Mayors covering city's perspective of urban transport challenges and one Conclave on harmonising standards for optimizing urban mobility-way forward in the Indian context. Besides, it had 8 Technical Sessions touching various sub-themes of topical interest and 9 Round Table Discussions on specific areas of importance and emerging needs in urban transport. The conference also had 8 sessions of Research Symposium involving M.Tech and P. hd. Students and researchers who presented their research papers revolving around the theme and sub-theme of the conference. Day wise theme based specific urban transport issues were deliberated on Standardisation and Optimisation of Urban Transport Solutions. It emphasized on harmonising standards for optimising urban mobility particularly in the Indian context, framework for integration of urban modes in urban mobility, multilateral and bilateral funding in view of the Make in India policy, importance of big data for transport planning, E-bus eco-system in urban India, benchmarking of cost in metro system, digital public infrastructure principals in relation to e-bus transition, innovative financing and issues and challenges in urban transport. Conference also dwelt in Round Table Discussions on vision for clean air cities, urban freight, transport for small and medium cites in India, 15 minutes city, public transport, etc. The conference clearly highlighted the need to optimize and standardize the urban transport solutions to have efficient and effective system. About 1,500 participants comprising senior officers from the field, academia and professionals attended the 3 day conference and shared their experiences and best practices followed in urban transport sector in the cities across the world. All the sessions had presentations from eminent experts in the specific areas which revolved around live case studies in India and other developed countries. Discussions in the conference were lively and interactive. The outcome of the conference is summarized below:

- **General Outcome**

- It was a consensus view that urban transport system and services like metro rail, bus system and other modes including non-motorized transport, propagation of E-rickshaw

and other IPT modes for first and last mile connectivity have come a long way and the time is ripe to standardize and optimize the use of urban transport services.

- For effective planning and future development, transport system is an important pillar. Transportation system is at the cusp of urban transformation. It will play a crucial role in achieving the objective of Viksit Bharat by 2047, as urban transport system is the driver and at the backbone for the Viksit Bharat.
- As enunciated in National Urban Transport Policy 2006, effective steps are required by city and state transport authorities to increase the modal share for public transport at least to 50 percent in the next decade or so.
- Urban transport system should follow the triple principle of sustainability, sensitivity to the local requirements and smart in operation. The need of the hour is to give major focus on green mobility.
- The emerging trends like smart city approaches, information and communication technology, artificial intelligence, etc. need to be deployed optimally for mobility to make it smart and digital.
- Efforts should be more on improving the micro mobility in the cities including construction of cycle tracks and pedestrian walkways alongwith making the road dust free as is being done in Gujarat.

➢ **Specific Outcome**

Harmonising standards for Optimising Urban Mobility.

- Various transport modes in Indian cities should follow standardized specifications and dimensions by way of economies of scale, seamless interoperability and integration of mobility services.
- The harmonized standards should meet the needs of urban mobility across diverse geographies and operational settings.

Integration of Various Modes in Urban Mobility.

- In the fast growing urban areas integration of different transport modes such as metro rail, city buses, ropeways particularly in hilly areas, IPT and NMT modes will have to be seamless in operation for improving mobility services, enhancing the use of public transport and addressing the inefficiencies in transport system and services.
- Innovative solutions and technological advancements should be used optimally so as to make the urban transport system cohesive and sustainable.

Multilateral and Bilateral Funding

- In view of the substantial funding from Multilateral and Bilateral agencies particularly for urban transport and Metro Rail projects in Indian cities there is need to have a balanced approach between international funding conditions and strengthening local capacities as part of Make-in-India policy so as to promote local industries and capabilities.
- Efforts be made by Govt. of India in pursuing the international funding agencies to make their domestic purchase conditions in the agreements in line with Make-in-India policy.

Leveraging Data for Transport Planning.

- In view of the emerging urban transport scenario in India there is a need for major shift towards holistic data driven process to improve mobility at the city level by taking up short, medium and long term improvement measures.
- Data created in the process of operation of various transport modes be aggregated and widely disseminated in public domain for better use in urban transport planning and practice.

E-Bus Eco-system

- For meeting the requirements of growing number of E-Buses there should be collaborative E-Bus eco-system by streamlining the mobility and energy infrastructure at a desired scale.
- For investment and innovation in e-bus system, private sector be also involved to improve financing and efficiency of the system. The e-bus system may also be re-imagined as a connected low-cost technology driven eco-system.
- Passengers, users, financiers be involved for successful implantation of E-Bus system.

Benchmarking Metro System Cost

- With increasing investment for the fast growing metro rail work in Indian cities the conference pin pointed that judicious use of resources for efficient implementation of metro rail projects is the need of the hour.
- It will be imperative to fine tune the cost estimates of metro system to align with the current market conditions.
- Metro companies should take initiatives to benchmarking the cost of metro system by taking into consideration the need of passengers, enhancing operational performances and network capabilities.

DPI framework for E-Mobility

- Fast shift towards electric vehicles should be accompanied by a digital revolution in bus transportation so as to have more integrated system managing energy and mobility efficiently and effectively.
- The success of DPI should give importance to access, interoperability and user choice as a matter of principle. The digital transformation should unlock full potentials of E-bus revolution for cleaner and more efficient transportation system in sync with clean energy and transition goals.
- Investors be encouraged to create cost effective and market driven tools for deploying the E-bus Infrastructure.

Innovative Approaches in Transport Financing

- The innovative financial resources could be raised through user charges, PPP, tax subsidies, asset and land monetization, leasing of property, carbon credits, etc.
- Planning of metro corridor should be done in such a way that a minimum 50 km. section of metro is available at one go so as to ensure financial and operational viability. Encouraging PPP in construction, operation and maintenance of Metro rail system could help in raising the resources and successful operation of Metro Rail System.

Gender Issues in Urban Mobility.

- To encourage women participation in urban transport system and service policies, strategies be formulated in such a way that the same support gender inclusion and their safety for employment and functioning.
- In this regard various gender sensitive measures taken by CRUT (Capital Region Urban Transport) Bhubaneshwar may be referred by various transport agencies for involvement of females in public transport in employment and service.

A. Inauguration of the Exhibition

The exhibition is a special feature of the UMI conference to disseminate and showcase the latest development in urban transport technology, system and service, best transport projects and propagation of innovative ideas. The exhibition was inaugurated by Shri Bhupendra Rajnikant Patel, Hon'ble Chief Minister of Gujarat. The latest technologies, urban transport start-ups, metro rail projects in operations, intelligent transport system, digital payment systems, foreign collaborators stalls were of special interest to the delegates and visitors. In all 76 exhibitors participated in the exhibition and put up their stalls to propagate their services and products. A side activity during tea/ coffee break on urban transport quiz was also conducted to keep the participants engaged. High level officers, company's representatives, delegates and participants visited the exhibition. On the last day before Valedictory session Hon'ble Minister of Housing and Urban Affairs, Shri Manohar Lal Khattar, Hon'ble Minister of State for Housing and Urban Affairs Shri Tokhan Sahu along with officers and delegates also visited the exhibition and appreciated the exhibits.

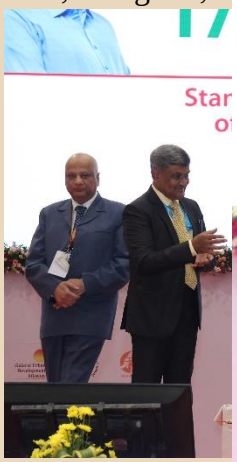
Glimpse of Inauguration of Exhibition

B. Inaugural Session

The 17th Urban Mobility India Conference & Expo 2024 was inaugurated by Shri Bhupendra Rajnikant Patel, Hon'ble Chief Minister of Gujarat. Hon'ble State Minister, Transport Department, Govt. of Gujarat, Shri Harsh Sanghavi. Secretary, Ministry of Housing and Urban Affairs, Shri Srinivas R. Katikithala. Shri Raj Kumar, Chief Secretary, Govt. of Gujrat, Shri Ashwani Kumar, Principal Secretary, Urban Development, Govt. of Gujarat, Shri Jaideep, OSD (UT), Ministry of Housing and Urban Affairs, Government of India and other dignitaries graced the inaugural session and enlightened the august gathering on the theme "Standardisation and Optimisation of Urban Transport Solutions" and the importance of annual international mega event on Urban Mobility India Conference cum Expo. An outcome of the inaugural session is discussed in the following section.

- Welcome and Opening Address by Shri Srinivas R. Katikithala, Secretary, Ministry of Housing and Urban Affairs, Govt. of India.
- Address by Shri Raj Kumar, Chief Secretary, Govt. of Gujrat.
- Address by Shri Harsh Sanghavi, Hon'ble State Minister (Independent charge), Govt. of Gujarat.
- Release of Publications and Inaugural Video.
- Inaugural Address by Shri Bhupendra Rajnikant Patel, Hon'ble Chief Minister of Gujarat.
- Vote of thanks by Shri Ashwani Kumar, Principal Secretary, Urban Development, Govt. of Gujarat.

Welcoming the dignitaries on the dais, delegates, participants, distinguished guests Shri Srinivas R. Katikithala, Secretary, Ministry of Housing and Urban Affairs, Govt. of India gave a brief background of the UMI Conference & Expo in his opening remarks. He said that earlier also UMI Conference and Expo was held in Gandhinagar in the same venue in 2016. The conference has its genesis from National Urban Transport Policy 2006. It is an international forum to deliberate upon best-practices in the field and share the experiences by the experts and policy makers. We have come a longway in developing urban transport system and service like metro rail, bus system and other modes including non-motorized transport. The time is ripe to standardize and optimize the use of urban transport services. As such theme of discussion in this conference is very apt "Standardisation and Optimisation of Urban Transport Solutions". The conference will have 8 Technical Sessions and 9 Round Table Discussion covering various aspects of core theme in detail. In addition, there will be 8 sessions of Research Symposium in which students and Researchers will make presentation on the current research in urban transportation. The conference has about 1500 delegates from India and abroad and 75 companies including metro rail, transport industry and service are showing their exhibits in the exhibition. In the valedictory session award for best practices in urban transport projects and operations will be given to the winning cities and states decided by the Awards Committee. In the concluding session award will also be given to best papers in the Research Symposium and best start-ups initiatives.



Lighting the c

Welcome address by Secretary, MoHUA

In his address Shri Raj Kumar, Chief Secretary, Govt. of Gujarat welcomed the Hon'ble Chief Minister, Govt. of Gujarat and other dignitaries on the dais. He thanked the Ministry of Housing and Urban Affairs, Govt. of India for giving the opportunity to Govt. of Gujarat to organize this year UMI conference and Expo alongwith

Audience in the Inaugural Session

MoHUA. He said that for effective planning and future development transport planning is an important pillar. Gathering here clearly show the importance attached to urban transport. We are at the cusp of transformation era with the urban growth in Gujarat having more than 40% urbanization level. About 30 cities with a population of one lakh and above are contributing about 70% of GDP. He mentioned about the clarion call given by the Hon'ble Prime Minister to have Viksit Bharat by 2047. Urban transport is the driver and at the backbone for the Viksit Bharat. Millions of people are moving to the cities which will have a direct bearing on urban mobility. Although congestion and availability of infrastructure pose a serious challenges in the cities but it also provide opportunities for systematic development. At present about 70% people are using personalized modes and there is limited use of public transport systems. Vehicle in cities also generating about 15% of total emission. A number of efforts such as metro rail, bullet train have improved the transport services and quality of life in cities. Now the emphasis is more on moving the people rather than the vehicles. Gujarat is becoming the hub of development and by 2047 with the Viksit Bharat, people will be living well, earning well and driving well. State is giving more importance to inclusive pubic transport. In Ahmedabad, Surat, Rajkot the state has provided affordable and comfortable BRT systems. Between Ahmedabad and Gandhinagar Metro rail is operating. Under P.M. E-bus Sava state is providing viability gap funding for procuring about 1000 E. Buses. In Ahmedabad and Surat intercity transport system is well integrated. In Surat city there is also an innovative bus system. In major cities Ring roads are being provided under urban Road CM scheme. Concluding his address Chief Secretary stated that overall policy of the government is to move forwards with practical and holistic solution in transports and urban development.

In his address Shri Harsh Sanghavi, Hon'ble State Minister Govt. of Gujarat elaborated on the efforts being made in urban transport system by following the triples principle such as sustainable, sensitive and smart system. He said that thousands of people are availing the facility of metro in Gandhinagar and Ahmedabad daily. He further stated that Surat metro will also be operational soon in the state. He stressed that the need of the hour is focus on green mobility now. He expected that the conference will bring out new and innovative ideas from other states and across the world as well which will be helpful in

Hon'ble Minister addressing the session

shaping the future urban transport in Gujarat also. He mentioned that during the last 10 years under the leadership of Hon'ble Prime Minister new directions have brought greater changes in urban mobility in India specifically in Gujarat. He touched on the emerging trends namely smart city technology, information technology, artificial intelligent making the urban mobility smart and digital. Gujarat is on the way to use National Common Mobility card in various modes of urban transport. Now in tier 2 cities also Metro and BRTS is being provided. On Bus station online booking is started and cognizance of the effect of climate change is being taken by more attention to Electric Vehicle and solar energy. Presently, 382 Electric buses are in operation and 1000 more Electric buses are being procured under CM bus scheme. In addition, 1759 old buses will also be replaced with E-Buses. Attention is being given to improve the micro mobility in cities such as construction of cycle tracks and pedestrian walkways. About 10 major roads have been made dust free roads. Gujarat has made significant progress for the operation of bullet train soon between Ahmedabad and Mumbai.

In his inaugural address Shri Bhupendra Rajnikant Patel, Hon'ble Chief Minister of Gujarat welcomed the delegates and participants in the 17th UMI Conference being held at Gandhinagar second time after 2016. He highlighted on the guidance given by Hon'ble Prime Minister of India during the last 10 years. India being the 5th largest economy in the world has made considerable progress in socio-economic development and urban mobility under the leadership of Shri Narendra Modi. In urban areas efforts have been made in sustainable transport and in improving the quality of life in cities. Special attention is given to improve urban infrastructure and facilities. First and last mile connectivity is improved in various cities of Gujarat for ease of living. UMI conferences have made significant contribution for introducing timely innovations in urban mobility.

Inaugural Address by the Chief Guest

He lauded that Gujarat state is lucky particularly during the last 23 years under the stewardship of Shri Narendra Modi first as Chief Minister of Gujarat for 13 years and now as Prime Minister for the last


Honoring the Chief Guest

10 years. There has been no dirth of money for urban development in the state. 23 years back the urban development budget was just 750 crore in the state which has now increased to 21,000 crore. A number of schemes have been taken up by the state government. Some of the important schemes are Sabarmati River Front, BRT system in Ahmedabad and Surat, Metro Rail System in Ahmedabad-Gandhinagar, multi-level parking in many cities, etc. In line with the commitment to achieve the zero carbon by 2070 Gujarat government has taken a number of initiatives like clean and green mobility, electric vehicles and CNG buses to achieve the target. Hon'ble Chief Minister appreciated that BRTS project in Ahmedabad started by the Hon'ble Prime Minister which has been a game changer in urban transport sector. Similarly, Metro services in Ahmedabad is a life line for lakhs of people in the city. In fact Urban Mobility India conference is a giant leap towards the journey of urban transport development in India. He hoped that outcome of 17th UMI conference will also be useful for achieving the target of Viksit Bharat by 2047.

Before delivering his inaugural address the Hon'ble Chief Minister released some publications and inaugural video as under:

- SRTS- The Safe Routes to School.
- Living Lab Methodology Toolkit.
- Strengthening India Urban Sector
- Short Film on Standardisation and Optimisation of Urban Transport solutions.

In the end Shri Ashwani Kumar, Principal Secretary, Urban Development, Govt. of Gujarat proposed a vote of thanks. He thanked the Hon'ble Chief Minister of Gujarat Shri Bhupendra Rajnikant Patel, Shri Harsh Sanghavi Hon'ble State Minister, Govt. of Gujarat, Shri Srinivas R. Kathikathala, Secretary, Ministry of Housing and Urban Affairs, Shri Raj Kumar, Chief Secretary, Govt. of Gujarat, Shri Jaideep, OSD (UT), MoHUA and other dignitaries, delegates, participants, as well as organizing team of MoHUA, Gujarat Metro Rail Corp. IUT. In his speech he also mentioned that 2024 conference will set the tone for Standardisation and Optimisation of urban transport solutions in cities in the century.

View of Inaugural Session

C. Plenary Session

Plenary Session 1:- City's Perspective of Urban Transport Challenges (Mayoral Session)

The UMI-2024 hosted one plenary session to initiate and provide a platform for discussion on city's perspective of urban transport challenges specifically for Mayors of Municipal Corporation. It was designated as such Mayoral Session. It underlined that cities mobility being the lifeline connect the people for various daily activities like education, work, economic activities, leisure, etc. challenges in urban transport often emanate from congestion, parking, poor use of public transport, sprawl of cities and poorly managed non-motorized transport (NMT) infrastructure.

Peak traffic hour, increasing urban freight, vagaries of weather often throw the transport system out of gear necessitating dependence on personalized transport which add to the sprawling problems including increasing pollution. Inadequate NMT infrastructure brings up safety and security concerns particularly for women, children and the differently abled persons. This also cause traffic accidents generally affecting pedestrians and cyclists.

To cope up with the problem, cities in India and overseas made significant efforts to make cities citizen friendly, accessible to all, resilient enough to meet suges in traffic demand and vagaries of nature. Funds have also been raised internally and through innovative financing to support capital intensive projects. Some of the urban local bodies organized citizen group and business entities together to meet challenges of development. Urban population in India is set to increase to about 600 million i.e. about 40% by 2030 and it is in this context that perspective and experience of cities' mayors on making the urban transport stress free and dynamic would be useful to chart out pathways for safe, efficient, accessible and environmentally sustainable urban trasnport for all. Promotion of electric vehicle technology would ensure cleaner air but for wider propagation of E.V. a strong charging infrastructure is pre-requisite.

The session indicated the strategies best suited for India's cities to meet the urban transport challenges by the participants comprising government bodies, service providers and citizens.

Chairperson : Shri Srinivas R. Kathikathala, Secretary, Ministry of Housing and Urban Affairs, Govt. of India

Moderator : Dr. I. P. Gautam IAS (Retd), Former Member, Lokpal of India (Gandhinagar)

Panelists-

i. Ms. Sulochana Das, Mayor, Bhubaneswar Municipal Corporation (Odisha)

ii. Shri M. K. Varghese, Mayor, Trissure Municipal Corporation (Kerala)

iii. Ms. Pratibhaben Rakesh Kumar Jain, Mayor, Ahmedabad Municipal Corporation (Gujarat)

Discussions in the Plenary Session

D. Technical Sessions

The conference had 8 technical sessions covering a wide range of urban transport related issues. The technical sessions provided a platform to the experts, professional and policy makers to share their experience, best practices, issues and trends in standardisation and optimisation of urban transport solutions and problems associated with it. All the technical session were well attended, interactive, informative and lively.

Technical Session 1:- Framework for Planning of Integration of Modes in Urban Mobility (Sponsored by ADB)

For standardisation in multimodal integration in urban transport a number of experts in the field of urban planning, urban transportation, policy making, technology are required to work in a multi-disciplinary team to work out the critical needs for unified standards in various modes of city transportation. With the expansion and fast growth of urban areas integration of different transport modes such as buses, trains, metro rail, ropeways, cyclists and pedestrians become complex but making the system seamless is all the more necessary for improving mobility, reducing congestion and enhancing the use of public transport, lack of standardisation often leads to fragmented system inefficiencies and coordination challenges. The session delve into the importance of establishing common standards to facilitate smoother transition and interoperability between different transport modes to make the system more efficient, reliable and user friendly. It also explored innovative solutions, technological advancement and policy measures needed to support and implement standardization so as to make the urban transport system cohesive and sustainable.

Chairperson & Moderator - Mr. Sharad Saxena, Principal Transport Specialist, Asian Development Bank.

Speakers / Panelists

i. Mr. Shalab Goel, Managing Director, National Capital Region Transport Corporation (NCRTS), New Delhi
ii. Dr. (Ms.) Julla Sattlelberer Portfolio anager, KFW Develop Bank, Frankfurt, Germany
iii. Prof. H.M.Shivanand Swamy, Professor, Emeritus Centre of Excellence in

Urban Transport (CoE-UT) CRDF Ahmedabad

iv. Ms. Aditi Singh, Principal Consultant Mott MacDonald Pvt. Ltd. Noida

v. Mr. Anand Singh Bisht, Director (Project and Planning) GMRCL

Highlights of Discussion and Outcome

- Under NCRTC intercity service connecting Delhi, Ghaziabad and Meerut is in operation.
- RRTS service is well connected with Metro rail in Delhi, Ghaziabad and Meerut.
- Various modes are integrated with NCRTC stations.
- Anand Vihar is an important Multi-modal station having Metro Rail, Namo Bharat (RRTS) Railway Station and inter-state Bus station.
  - RRTS and Metro are connected through paid to paid areas.
- Examples and best practices from Japan transport system and Berlin station (Germany) were presented and also integration of Metro and BRTS in Ahmedabad.
- In RRTS 4 stations have multi-modal integration system where various modes are well connected. Similarly, Surat Metro and Railway station will have 7-8 elements of multi-modal integration.

Panelists in the session

- It was pointed out that NMT system being crucial and important should be well integrated with MRTS in various cities
- It was reiterated that Nodal agency like UMTA is required to be established immediately in all Metro cities for effective multi-modal integration.
- Integration has to be taken up at all levels such as fare, information, physical, operational, institutional so as to have its fruitful results.
- TOD concept be taken up for imlementatio in a fast mode for success of Metro Rai system

- Multimodal integration be taken up in a systematic manner to increase the footfall in Metro system.
- It was opined that in MM1 if one system / mode not good or effective then whole system may suffer. Hence commercial integration with MM1 hubs would prove to be a game changer step.
- Different transport systems should not compete with each other rather they should complement.

Session in action

Technical Session 2:- Harmonising Multilateral and Bilateral Funding & Make in India Policy (Sponsored by MoHUA)

Make in India campaign launched in 2014 with the purpose to facilitate investment, faster innovations, enhance skill development, protect property and to build best in class manufacturing infrastructure within the country. Ministry of Housing and Urban Affairs have taken a number of initiatives to implement make-in-India Programme. The urban transport and metro rail related industries have made substantial strides in developing indigenous capacities for providing world class goods and services over the last 8-10 years.

However metro / urban transport project funded by bilateral and multilateral financial institutions follow the guidelines of the donor agencies which may not necessity align with the finer prints of the make in India Policy. Almost all the metro projects have around 40-50 percent funding from these agencies. This aspect needs to be seen critically so as to have balance between international funding conditions and to strength local capacities as part of make-in-India Policy.

Of late it is a practice that local and regional capacities are also developed by the multilateral funding agencies under the loan package. Some of these agencies also help in promoting local industries and capabilities but their guidelines may not entirely sync with perception of Make-in-India Policy. The sessions deliberated on all such issues and explored the possibilities of harmonising the procurement guidelines of the multilateral and bilateral agencies with the goals of local and regional development under the provision of make-in-India Policy.

Chairperson Shri Jaideep, OSD (UT), Ministry of Housing and Urban Affairs, Govt. of India

Moderator Shri Mukund Kumar Sinha, Senior Transport Specialist, Asian Development Bank

Speakers / Panelists

i. Dr. Klaus Liebig Head of Climate Finance and Mobility, KfW Development Bank, Frankfurt Germany

ii. Shri S. Sivamathan Director (Finance) and Chief Financial Officer (CFO) Bangalore Metro Rail Corp. Ltd (BMRCL) Bangalore

iii. Shri Vineet Abhishek Chief Public Relation Officer, Western Railway

iv. Shri Kavi Prakash, COS, Delhi Metro Rail Corporation Ltd., New

Delhi

v. Shri Ravi Peri, Former Director, Transport Sector, Asian Development Bank

Highlights of Discussion

- Make in India initiative was launched by the Govt. of India in 2014 and subsequently a public procurement order was issued in this regard by the Govt. of India in 2017. This order was amended in 2020 which is in operation.
- The order defined that the local contents means the amount of value added in India. It shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured minus the value of the imported content as proportion of the total value in percentage.

Panelists View

- It also defined the local supplier (both class I or II) means a supplier or service providers, whose goods, services or works offered for procurement meets the minimum local content as prescribed.
- Under the make-in-India policy MoHUA has suggested the purchase preference for the metro rail components. It detailed out the preference as under:
  - For global tenders where goods/ works are not divisible in nature class I bidder is only eligible.
  - The purchase preference prescribed 20% to class I local supplier.
  - It further prescribed minimum percentage of local content for class I local supplier for various components of metro.

Component	Minimum Local Content
Rolling Stock	60%
Telecom	50%
Signalling	50%
Civil Work	90% for elevated system 80% for underground system
Electrical and Mechanical	60%

- Purchase Preference Modality specified the following conditions.
  - Maximum margin of purchase preference is to be 20% to class I local supplier.
  - In case L1 is the class I local supplier full quantity will be awarded to L1.
  - If L1 is not a local supplier then the next lowest local bidder falling within the purchase preference will be awarded the full quantity subject to matching the L1 price.
- Certificate for local content is to be provided by the bidder.
- Nodal Ministry will be responsible for verifying the local content.
- International funding agency like KfW and Development Corporation under Germany's Development policy provides for use of local contents under the guidelines of (UN) sustainable Development goals.
- Accordingly, goal 9B support domestic technology development, research and innovation in developing countries, including by ensuring a conducive policy environment for interalia industrial diversification and value addition to commodities.

Panelist sharing his views

- KFW and GIZ which are the implementing agencies of the Federal Ministry of Economic Cooperation and Development of Germany have endeavoured to create capacities and job opportunities in its operation in India and other countries to follow the guidelines of Make in India Policy.
- From above it is clear that KFW's procurement guidelines enabling framework give boost to local manufacturing capacity.
- It also further prescribes that margin shall not exceed 15% of the import price excluding taxes in the case of procurement of goods or 7.5% of the price in the case of procurement of works.
- The guidelines is subject to the conditions that the entire process of procurement is conducted in a fully transparent manner by applying a margin of preference of goods produced locally or for contractors for works from the PEA's country and also provided for in the tender document and not lead to defecto exclusion of foreign competition.

Momento presentation

- ADB also applies domestic preference under the projects that it finances but with caution to apply the preference scheme with the tolerances described by the funding agency.
- All Metro Projects implemented by Delhi Metro Rail Corporation have been with untied conditions. Initial loans for Mumbai (line 3) Bengaluru and Chennai have also been with JICA untied conditions.
- Lately the JICA loans offered for corporation other than DMRC have, however, special terms for economic partnership (STEP) or tied conditions.

- It is seen in general that in Metro Projects 50-60% of the Capex is met through loan.
- Some funding agencies permit domestic preferences of works and some for works and goods but none for consultancies.
- Though provision of exemption form Make-in-India for externally funded projects do exist the process entails delay.

Outcome

- Development of indigenous capacity will help in achieving economies of scale.
- It will reduce operation cost in terms of reduced cost of spares and provision of efficient services over life cycle as Metro Projects have a very long life. Hence substantial savings.
- Keeping the requirements of creating a cost effective and quality manufacturing facility in India, funding agencies should make their domestic purchase preference clauses in line with make in India Policy.

Momento given to panelist

- Funding agency should consider including works contract and consultancy services at par with goods in the domestic preference guidelines.
- Procurement should be based on the life cycle of the equipment.
- Tied and untied loan conditions need to be understood clearly.
- Changes in internal funding be done at policy level rather than project level.
- There should be harmonization rather than uniformity of multi-lateral policy as well as funding agency policy.

Technical Session 3:- Leveraging Date for Transport Planning (Sponsored by WRI)

Increasing level of urbanization in the country pose many challenges besides providing opportunity. Keeping pace of infrastructure development across the cities as per rising demand is one of the major challenges. Urban mobility is most affected sector interms of huge congestion on roads, inadequate public transport coverage and availability, poor infrastructure for walking and cycling, increasing emission and road crash incidents, etc. India's urban population is expected to be 600 million by 2031 and may further intensify. This clearly shows the need for a major shift towards holistic data driven making process to improve mobility at the city level by taking up short and medium term improvement measures. The present practice is to collect and process the data in silo's and even after aggregation of data it is not widely disseminated in public domain. As such data whether raw data or processed information is not available for use publically. In such scenario ether lack of data or non availability of processed data results in ad-hoc planning that does not really help to improve mobility or sustainability. With the result it becomes difficult to benchmark best practices across the cities for having a comparative picture as against global best performers in one particular aspect of urban mobility.

In order to transform city mobility to meet the objectives of Viksit Bharat by 2047 a multi layered data analysis incorporating mobility data from transport providers, civic agencies, census and from other modern data sources.

The session deliberated on all such issues namely:-

- Critical mobility data that need to be collected at a city level.
- Kind of datasets to be integrated and collated.
- Analysis of data and its presentation format for use of different stakeholders.
- Processing of information for short, medium and long term measures.

Chairperson	Shri Loknath Behera, Managing Director, Kochi Metro Rail Ltd.
Co-Chair	Shri Hari Somal Raju, Managing Director, Systra
Moderator	Shri Avinash Dubedi, Head Integrated Transport, WRI, New Delhi

Speakers -

i. Shri Kishor Nathani, Managing Director and CEO, UMTC, New Delhi
ii. Shri Srinivas Rao Arraunta, Asst. General Manager, BEST Undertaking Mumbai
iii. Ms. Swati Khanna, Project Officer, KFW Development Bank, New Delhi
iv. Shri Abhijit Sengupta Country Director, A Sea Pacific Smart Card Association (APSCA) India
v. Shri Vivekanand Kotikalapudi, Transport Infrastructure, Advisor, GIZ
vi. Shri Saurabh Kasturia Founder and CEO, Street Surge Technologies, Gurugram.
vii. Shri Yuri Gorlor, Deputy Head of International Business Team, TVEMA

Highlights of Discussion

- Mass Transit System is a complex system and faces several unique challenges such as capital intensive, rising benchmark lending rates, exchange rates variation, and limited flexibility in fares and low ridership.
- Operating agencies generally adopt 3 approaches in their efforts to ensure financial viability. It focuses on core operations, development of alternate revenue streams and developing new innovative frontiers.
- Hongkong MTR follows a unique business model of rail plus property. It has leased out about 3.00 lakh sq.m. space during financial year 2022.
- Singapore MTR operates multi-modal public transport services including rail, bus, taxi and offers technically backed advertisement with rider insights.

Panelists on the Dias

Outcome

- There is a need for strategic planning for financial resilience as being done in Water Metro Project in Kochi.
- Designing of Metro system should be futuristic so as to meet the eventualities after implementation of the project.
- Metro operation and maintenance should follow commercial model/ hybrid model involving PPP. TOD policy needs to be given special attention to sustain mass transit system.
- For construction and implementation of metro benchmarking of cost is required.
- Seamless mobility needs better data inputs which should be available in public domain and be authenticated by the expert agencies.
- Use of big data should follow following principles-
    - Creating common digital goal for transport.
    - Democratically policy analysis.
    - Fostering dialogue and collaboration.
- Data used for analysis be from public domain so as to make use of the same in authentic manner.

Varied scene of the session

Technical Session 4:- E-Bus Ecosystem in Urban Space (Sponsored by ADB)

India has come a long way in its journey towards providing sustainable urban mobility. The increasing air pollution, country's commitment to reducing carbon admission, need for modernizing public transport system have made it necessary to adopt EVs as a crucial component of India's transportation strategy. Among the various E.V. segments E-Buses are crucial to transform public transport. It offers a cleaner, quitter and more efficient alternative to traditional buses. The government has taken several initiatives to promote and adopt e-buses as part of standardisation and indigenization programme. However, widespread provision of E-buses in cities face many challenges related to high initial cost, charging infrastructure, availability of concessional finance, battery technology and electronic components.

The Panel discussion in the session explored the current landscape, challenges and prospects of e-buses in India, standardisation and indigenization, etc. The key stakeholders comprising policy makers, industry leaders, transport experts shared their experiences in promoting the wider use of e-buses by highlighting the best practices prevailing around the world.

Chairperson - Dr. Surendra Kumar Bagde, Additional Secretary, Ministry of Housing and Urban Affairs, New Delhi

Moderator - Shri Sharad Saxena, Principal Transport specialist, ADB, New Delhi

Panelists -

i. Mr. Kanzo Nakai, Director, Transport Sector Group, ADB
ii. Ms. Japnit Kaur, Senior Investment Specialist, Private Sector Operation Department, ADB Manila
iii. Shri Nishant Arya, Vice Chairman & MD, IBM Gurgaon (Auto)
iv. Shri Ulrich Thomas, Tech. Specialist KFW, Frankfurt Germany
v. Shri Chintan Daftardar, Sr. Program Manager, Cities and Transport, WRI India, New Delhi
vi. Prof. (Dr.) P.K.Sarkar, Former Professor, School of Planning and Architecture, New Delhi, Former Vice President IUT
vii. Mr. Prashanth Kumar Palani, Head- Automotive Homologation, Haritha Techlogix, Coimbatore.

Highlights of Discussion

- Example of China may be seen in which subsidy is provided for E-Bus for faster adoption of e-bus system.
- Well knit charging infrastructure for fleet management is crucial for successful implementation of E-Bus system.
- Dedicated standards for E-Bus system will go a long way to have better experience of its operation.
- E-bus service may function better with isolated and separate depots for e-bus. It will promote green energy.
- Collaboration of stakeholders such as passengers & users of e-bus seva, financiers trust in funding the e-bus systems would be important for successful implementation of the scheme.

Panelist assembly on the Dias

Outcome

- Strategy for scaling up of e-buses should formulate policy framework and regulations fostering stability in incentives, disincentives to diesel / CNG buses and indicate mandate for transition with priority in cities.
- There should be bankable STU contracts specifying standardised contracts, VGF facility, provision for payment security, dispute resolution, etc.
- Provision be made for shared charging infrastructure for all large vehicles in metropolitan areas and along corridors.
- Financial innovations including pools to achieve economies of scale, access to green bonds, support to first 10% of private e-buses with incentives and stimulation of business models reducing upfront costs.
- Eco system for capacity building and training programmes for the manpower engaged in e-bus services be created in collaboration with specific institutes.


Audience view in the session

- R&D be developed for improving products being used in India. Share the experiences of e-buses and disseminated the same widely.
- For private buses under STUs green bonds may be issued to improve access to finance so as to protect small time operators from capital risk.
- Establish Bus Ports for parking, charging and maintenance through PPP for easy transition to e-buses.
- A balanced approach is to be followed while addressing the risks in bus operation. In public sector focus is on efficiency, value for money, quality service and good competition while in private sector ease of working, adequate returns, payment security and improving efficiency are the major concerns.

Momento being given to chairman

Technical Session 5:- Benchmarking Cost of Metro Systems (Sponsored by MoHUA)

Metro rail in India is a remarkable success story. There has been significant expansion of Metro rail system over the years particularly during the last one decade. It is operational in 23 cities with a network of 989 km. Another 974 km of metro network is under construction. On this network more the 10 million commuters travel on daily basis. Building metro rail in an urban set up entails high capital investment. With many cities aspiring to set up metro rail system the requirement of capital investment will be high and the scarce resources may throttle the growth. Judicious use of resources for efficient implementation of metro rail projects is the need of the hour.

With the implementation of Make in India policies it is seen that with continued expansion of metro rail local manufacturing and construction capabilities have made substantial progress. The cost of construction of many metro components has also reduced over the years. In this scenario it will be imperative to fine tune the cost estimates of metro system to align with the current market conditions. The session discussed the way forwards for benchmarking cost of various components of metro rail system in a manner to correctly reflect the market conditions and facilitate efficient and transparent procurement.

Chairperson - Mr. Om Hari Pandey, Director/Electrical, Delhi Metro Rail Corporation Ltd.

Co-Chair - Mr. Sushil Kumar, Managing Director, Uttar Pradesh Metro Rail Corporation Limited, Lucknow

Panelists -

i. Mr. Jaideep, OSD (UT), Ministry of Housing and Urban Affairs, Govt. of India.
ii. Mr. Shalabh Goel, Managing Director, National Capital Region Transport Corporation (NCRTC)
iii. Mr. Rajiv Dhankher, Director, Projects & Planning, Delhi Metro Rail Corporation Ltd., New Delhi.
iv. Mr. Sandeep Fuller, Senior Vice-President, SYSTRA
v. Mr. Rajeev Tyagi, Director (Project), Maharashtra Metro Rail Corporation Ltd.,

Nagpur.

vi. Mr. Praveen Goyal, CEO of DB RRTS.

vii. Mr. Alok Kapoor, Chief Executive Officer, Pune IT City Metro Rail Limited

viii. Mr. Philippe Leguay, International Director, Keolis International Operation Transport Company.

ix. Mr. N.M. Dhoke, Director (Rolling Stock, Signaling & Electrical), Bangalore Metro Rail Corporation Limited (BMRCL).

Highlights of the Discussion and Outcome

- Keolis a world leader in mobility operating in 15 countries feels that metro system could outsource automated metro operation and maintenance.
- Public transport authorities while addressing the problem of streamlining or benchmarking cost of metro system need to think like a passenger, enhance operational performances and network capabilities.
- Choice for new lines be informed to the user at the earliest while assessing the best transport mode options. High performance metros be designed with easier effective operation and maintenance.

A complete view of the session

- Integrating metro lines to add value such as multimodal integration, operation and maintenance, integrated fares and ticketing and robust revenue collection.
- Metro authorities should work with all stakeholders by sharing world class knowledge on safety, service delivery from the start itself.
- There should be collective design, comprehensive understanding of passenger needs in all diversity.
- Benchmarking of cost should be a continuous process rather than one time exercise.
- Cost optimisation to data driven decision for improving efficiency across metro system.

- Contract conditions need to be standardised to reduce cost. As DMRC follow there could be uniform specification for rolling stock and design may be repeated with requirements.
- Likewise precast components may be used wherever possible to enhance operational efficiency. Life cycle cost of a component may be seen rather than initial expense. There should be continuous refinement of benchmarking practice.

Panelist sharing his view

- With the duel functionality of RRTS both as MRTS and RRTS services its maintenance cost could be unique example.
- There is a need to review 2019 benchmarking report to reflect new data and realistc cost.
- Separate benchmarking system may be established for tier I and tier 2 cities.
- Leveraging existing resources by utilising high performance material to minimise the cost and reducing the environmental footprints.
- There is a need for econometric benchmarking to connect performance metrics with cost effectiveness in metro project.
- Collaboration among various stakeholders in the Metro eco-system is important for cost efficiency.
- Cost efficiency of automated metro depends on many factors such as safety, availability, flexibility, punctuality, regularly, efficiency in energy and operational saving.


Audience view

Technical Session 6:- Leveraging DPI Framework for E-Mobility

Electric buses are likely to contribute significantly in achieving the target of net-zero emission in India by 2070. The government ambitions plan is to replace a large number of bus fleet with 800,000 e-buses over the next seven year indicates a strong commitment. Such a huge transformation of bus fleet, however, hinges on overcoming the legacy and the new challenges of the bus transportation system both public and private operation. The current system designed for fossil fuel buses need to undergo transformative shift to incorporate the challenges to meet the scale and urgency of the e-bus revolution. Further, the global shift towards electric vehicles has to underscore the need for a digital revolution in bus transportation. The growth of decentralized energy sources and connected infrastructure point to the need for more integrated system so as to manage energy and mobility efficiently and effectively.

In this context a digital public infrastructure (DPI) approach holds the key and offer a viable solution. Modelled after the open standards that underpinned the internet and mobile networks, DPI faster's collaboration and innovation across various stakeholders the government, private sector and the citizens. India's success with DPIs like Aadhar (identity) and UPI (payment) demonstrate its effectiveness. Key principles include access, interoperability and user choice leading to societal benefits like financial inclusion and broader socio-economic opportunities. Open networks built on DPI principles are expanding the digital commerce and other sectors.

Building upon these learnings, the idea of an open e-bus stack emerges as a digital public good (DPG) designed for India's e-bus revolution. This open source approach fasters transparency, interoperability and collaboration among stakeholders such as public and private bus operators, financiers, manufacturers and government agencies. The open e-bus stack encompasses the entire eco-system for e-bus deployment from the buses as such to the critical mobility – energy infrastructure for charging, operations and monitoring. By embracing these DPG principles, stakeholders can devise strategies to achieve the large scale transformation of the bus transportation sector. This digital transformation built on open public infrastructure principles hold the key to unlocking the full potentials of India's e-bus revolution leading the nation towards a cleaner, more efficient transportation system in sync with clean energy transition goals.

The session discussed all these issues particularly related to challenges in existing technology models and opportunities for DPG adoption in bus transport sector. Panelists in the session comprising DPI implementation experts, financiers, policy makers and climate tech investors focused on the following issues.

- The role and key challenges of integrating technology into India's bus system for supporting the e-bus transition.
- How this adoption of a unified approach like DPG of bus transport could help in driving inclusivity and innovation at scale.
- How the DPG would enable and empower various stakeholders of the eco-system.
- Type of partnership and alliance required to enable the adoption of DPG for public buses.

Chairperson - Mr. Mohinder Singh, Ex-Director (Planning), The Land Transport Authority (LTA), Singapore.

Moderator - Dr. Pawan Mulukutia, Executive Director, Integrated Transport, Clean Air and Hydrogen, WRI India. Bengaluru.

Presenters -

i. Prof. Gitakrishnan Ramadurai, Professor, IIT Madras.
ii. Dr. Rohini Srivathsa, National Technology Officer, Microsoft India and South Asia.
iii. Mr. Yogesh Shetye, President - Business Development, Paycraft Solutions Pvt. Ltd.
iv. Mr. Avinash Dubedi, Head - Public Transport, WRI India
v. Mr. Chintan Daftardar, Senior Program Manager - Cities and Transport, WRI India, New Delhi.
vi. Prof. Shivanand Swamy, Professor Emeritus, Center of Excellence in Urban Transport (CoE-UT), Ahmedabad
vii. Mr. Prasanna Patwardhan, President, Bus & Car Operators Confederation of India, BOCI.
viii. Dr. Himani Jain, Senior Programme Lead, CEEW

Highlights of Discussion

- Buses are primary form of public transport in India. About 90% of road based passengers in India rely on buses for transportation.
- About 389 million passengers travel by bus everyday. With 2 million buses on the roads, India has the third largest bus fleet in the world after Indonesia and China. Share of public buses is 7%.
- The problem with public transport in India is fragmented eco-system with small players. It limits the opportunities for efficiencies and scalability. About 90% of the bus operators in India own less than 5 buses.
- As regards availability of electric buses the target is to have 8,00,000 e-buses in the next 10 years.
- Growth of e-buses demands a collaborative eco-system. Mobility and energy infrastructure at required scale needs streamlined management and communication. For investment and innovation partnership to leverage private sector strength is required in financing and efficiency.
- Broader engagement and collaboration with private sector is necessary for sustainable growth with diverse stakeholders.
- As regards buses and its infrastructure – 75% of India's buses reach end of life in 3 – 5 years which provide opportunity for replacement by electric buses.
- Demand aggregator has demonstrated cost parity with ICE counterparts. Government initiative for electric buses is based on cutting the emission and to meet India's commitment.
- In respect of use of IT in public transport MoHUA and MoRTH are independently implementing ITMs solutions nationwide across cities and STUs.
- Shift in service based models demands transparent data exchange for various stakeholders.
- Limited technology providers as of now offer non interoperable solutions.
- Hence there is an opportunity to re-imagine the bus sector as a connected low cost technology driven eco-system.
- The current technology gap relates to absence of data standards and limited observability of information. It is reported in a study by WRI that over Rs. 1000 crore spent on ITS for public buses with little value addition and unreliable operational data capture.
- There is need for rethinking about use of technology based on DPI principles.
- The open E-Bus blueprint model integrates technology architecture, integrates with government standards and specifications as well as market driven innovations.

- There will be a paradigm ship with use of open E-Bus blueprints. It encourages widespread participation enabling flow of value generated and address various other problems.

Outcome

- Bus transport under open E-Bus blueprint model should shift from technology to foundational digital building blocks f or scalable solutions.
- Investors be encouraged to create cost effective and market driven tools for deploying the E-bus infrastructure.
- Multi sectoral stakeholders be enabled to contribute and benefit from the E-Bus transition.
- E-Bus open the possibilities of mobilizing green finance. It will unlock new avenues like carbon markets and sustainable green financing with data exchange.
- Approach should be people centric and not operator centric.
- There is a need to have seamless communications across different network so as to connect all the dots in DPI.

Audience view

Technical Session 7:- Innovative Approaches in Transport Financing (Sponsored by MoHUA)

Cities are engines of economic growth and mobility is a critical ingredient for catalysing the economic growth. With increasing urbanization, investment requirements for infrastructure poses a formidable challenge. In view of the traditional financing models which put a burden on government many innovative models of alternative financing have been tried in the recent past. Since transport investment constitute about a quarter of the total funding requirements in cities, innovative financing models which do not rely completely on government budgetary resources are being deployed through appropriate policies.

The session while taking the cognisance of prevalent policies explored the additional possibilities of introducing new approaches and models for financing transport infrastructure. These innovative resources could be raised through user charges, PPP, tax subsidies, assets and land monetization, leasing of property, carbon credits, etc.

Chairperson - Mr. Maheswara Rao IAS, Managing Director, Bangalore Metro Rail Corporation Limited.

Moderator - Mr. Ajit Sharma, Director (Finance), Delhi Metro Rail Corporation Ltd., New Delhi.

Speakers -

i. Mr. K.V.B. Reddy, Managing Director & Chief Executive Officer, L&T Metro Rail (Hyderabad) Limited, Hyderabad.
ii. Mr. Uday Narain, Asst. Vice President, Pune Metro.
iii. Mr. Mahendra Kumar, Director (Electrical & Rolling) Stock, DMRC.
iv. Mr. Ravi Peri, Former Director, Transport Sector, Asian Development Bank.
v. Shri Vijay Singhal, IAS, Vice Chairman and Managing Director, Navi Mumbai Metro, CIDCO.

Highlights of the Discussion and Outcome

- In PPP initiative taken together by govt. of India, Govt. of

Delegate sharing his view

Maharashtra, Tata and Siemens group for Pune Metro line III three issues are flagged. It is a high capital intensive project requiring upfronts outflows of revenue with a stream over a long period.

- PPP could succeed in the Metro in view of the following factors:-
    - Availability of 100% ROW before appointed date.
    - Major utility diversion to be done prior to project commencement.
    - Planning of metro corridor should be done in such a way that a minimum 50 km section of metro is available at one go.
    - Design should be optimized to reduce capital investment and operational expenses.
    - 40% of VGF be available timely as per requirement of the project.
    - Low cost infrastructure debt be available for metro projects.
- For Optimum sharing of govt. and private resources, mechanism may be decided in advance. There has to be clear understanding between government and private agencies.
- In this regard some mechanism be evolved where capital cost may be borne by the government and operational cost to be shared by private sector.
- Emphasis may however be focus on viability.

Delegates exchanging their experience

Technical Session 8:- Gender Issues in Urban Mobility

The perception that the transport sector is unequitable in respect of gender equality is not unfounded. In the employment in transport sector male representation dominates with less than 5% women in the labour force participation. As per World Economic Forum, women accounts for 23% of employees in Europe and central Asia Region in transport and logistics with many being engaged at unequal pay for equal work. The gap or the lack of gender diversity is due to several reasons ranging from social to operational. There are some persisting social barriers such as occupational segregation, insensitive sanitary facilities, lack of flexible working arrangement child care, etc.

In addition, there are operational challenges as well in terms of physical eligibility criteria namely minimum height being one, thereby hindering the diversity. There are, however, some organizations within the transport sector that are taking initiatives towards enhancing gender participation and women's security. For instance in service for women only, DTC buses in Delhi have trained female marshals. As a result presently there are 60 women bus drivers employed by DTC. Some organizations such as Azad Foundation and Chennai ANEW have trained and empowered more than 4,000 women drivers to steer this public transport mode. The Capital Region Urban Transport Bhubaneshwar has stipulated 40% reservation for women conductors. The Surat Sitilink has included transgender for data monitoring in their public transport system.

The session had participation of various authorities at national and local level including private organization and international experts working in the sector who deliberated on the following issues.

- Policies and strategies supporting gender inclusion and their safety in various countries.
- Challenges faced by other genders while travelling in public transport system.
- Challenges towards inclusion of other genders in transport systems and identify possible job opportunities in the transport eco-system.
- Interventions required at national and local level in Indian context.

Chairperson -	Ms. Usha Padhee, IAS, HUDD, Odisha Connectivity – Transport and Electric Mobility), NITI Aayog
Co-Chair	i. Ms. Sagarika Patnaik, IRPS ii. Mr. Christian Kapfensteiner, Director, Sustainable Urban Development and SUID Cluster Coordinator , GIZ India
Moderator -	Ms. Krishna Desai, Mobility Specialist, SUM-ACA,

GIZ, New Delhi

Speakers -

i. Ms. Thysz Estrada, Transgender activist, Philippines
ii. Dr. Noonsavath Thirumala Naik, Managing Director, Capital Region Urban Transport, Bhubaneswar
iii. Ms. Swati Khanna, Project Officer, KFW Development Bank, New Delhi
iv. Ms. Rajani Tewari, Chief People Officer, Green Cell Mobility

Highlights of Discussion and Outcome

- CRUT (Capital Region Urban Transport) with a total fleet of 463 buses is a key institute that provides sustainable and affordable mode of transport in urban areas in Orissa.
- It has taken various gender sensitive measures in terms of gender based ticketing, dedicated seats for women, providing bus safety features like CCTV and emergency panic button, automatic vehicle tracking system, well-lit bus queue shelters and on bus female crew.
- It also introduced first and last mile connectivity by introducing E-rickshaw as a first and last mile solution since 2022. It is operational along fixed routes within a 3 km radius of bus stops. Bus system hired women transgender and HIV positive individuals as sarthi (driver).
- Gender sensitivity MO Bus run by CRUT in several cities of Orissa is a successful example and could be emulated by other cities as well by providing the required features. In fact 57% of passengers have shifted from other modes of transport to MO bus.

Panelist in discussion mode

E. Round Table Discussions

A total of 9 Round Table Discussions covering a wide range of transport related issues such as clean air cities and its impact on urban transport, innovative challenges, urban safety, mobility for all, urban transport solutions in small and medium cities, innovation trends in metro system, concept of 15 minutes city, standardizing mobility systems, PPP in transport infrastructure and services, etc. were deliberated as part of UMI conference. It provided a platform to the speakers and participants for interaction, sharing experiences of ongoing projects, emerging new technologies in various cities both in India and across the world. In each session a key presentation was made eliciting the comments and views of the expert panelists and participants, which was moderated by expert moderator in the specific area of the session.

Round Table 1:- Vision for Clean Air Cities: Impact of Urban Transport (Sponsored by EIB)

World over including India there is a greater impact of climate related extreme weather phenomena. According to global climate Index 2021, Indian cities will be subject to the compounding effects of climate change on urbanization as well. It will make the life of people particularly in cities vulnerable. Urban planning including mobility need to help in improving the air quality by promoting clean and green energy to safeguard the health of people in the cities. Climate inclusive master planning, promotion of transit oriented development, collaboration among policy makers, urban transport planners, community can help in transition to a more sustainable and climate resilient future. Surface transport related pollutants (rail, water or road) have generally been studied in the perspective of tailpipe emission only. The non-exhaust emission are also significant in urban environment affecting quality of both air and water and the need to be studied to analyses its impact on health.

The round table panelists comprising eminent policy makers, transport providers, municipal authority officials and urban planner shared their ideas related to successful projects, concept and technology and other interventions.

Chairperson - Ms. Nicola Beer, Vice President, European Investment Bank.

Moderator - Ms. Shruti Narayan, Managing Director, Regions and Mayoral Engagement and Regional Director, South and West Asia, C40 Cities, India.

Panelists/ Speakers -

i. Mr. Kumar Keshav, Project Director UMCH, Director Business Development (India) & Member of Board of DB RRTS
ii. Mr. Zoltan Donath, Principal Advisor, Lead Transport Engineer, EIB
iii. Dr. Shalini Sinha, Dean, Faculty of Planning, Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, CEPT University, Ahmedabad
iv. Mr. Reda Souirgi, Head of Digital and Mobility Division, Agence Francaise de Development (AFD).
v. Mr. Maheswara Rao IAS, Managing Director, Bangalore Metro Rail Corporation Limited.
vi. Dr. Karan Madan, Associate Professor of Pulmonary, Critical Care, and Sleep Medicine, All India Institute of Medical Sciences (AIIMS), New Delhi
vii. Mr. Amit Kumar, Senior Vice-President, Mott MacDonald Pvt Ltd., Noida
viii. Dr. Monika Kashkari, Special Officer, DULT, Bengaluru.

Highlights of Discussion

- Cities occupies 2% of world's landmass but consume around 75% of the world's energy. Cities create over 70% of energy related greenhouse gas emission while on the other hand generates over 80% of the world's GDP. Impact of all such developments is prenominal on urban transport. It is reported that about one-third of cities emission is from transport sector. Infact traffic congestion is number one source of urban air pollution.
- In the context of urban transportation and air pollution it is reported that 9 out of 10 persons live in unhealthy air affecting their health leading to about 4.2 million premature death annually linked to outdoor air pollution.

Panelists sharing their views

- In terms of health cost it is estimated that air pollution amounts to $ 5.11 trillion globally per year. Long commutes can also lead to a 10% increase in mental health issues including anxiety and depression.
- All these challenges are part of vicious cycle such as with the increase of urban population there is increase in urban transport demand which leads to increase in air pollution.
- There is a need to prioritise urban transport planning that reduces greenhouse gas emission, improve air quality and safeguard public health.

Outcome

- Solution to minimize the impact of urban transport on air pollution lies in holistic and people centered mobility vision for cities.
- Introduce congestion pricing by charging vehicles for travelling in a certain area of the city.
- Improve access to public transit stations by expanding service provision and improving last mile connectivity along with consolidation and expansion of e-cargo bikes.
- Develop low emission zones by regulating or charging access to areas based on vehicle emission standard.
- Transitioning heavy and medium duty high mileage truck and public buses to zero emission.
- Incentivizing E.V. uptake and also expand E.V. charging infrastructure.
- Reclaiming public spaces from cars back to people popularizing pedestrianisation and cycle lanes.
- Integration of well-designed public transport system and urban planning strategy help in environmental health, social and economic benefits. Public transport capacity should be doubled in cities over the next decade to meet 1.5^{o} C targets.

Audience in the session

- Investment in doubling the capacity of public transport in cities could create about 4.6 million additional jobs across 100 cities and cut emission from urban transport by more than half by 2030. It could reduce air pollution from transport by 50 percent and protect tens of millions of workers in lower income and service sector jobs.

- From health point of view enhanced investment in public transport capacity would be safer than travelling by car, reduce risk of depression among users which also reduce the risk of heart disease and stroke among users.
- In some cities across the world zero emission areas and stepping stone policies have been introduced which have been beneficial in reducing the emission. For example seatle has introduced low pollution neighborhoods policy while London is massively expanding the size of urban low emission zone. Similarly, Milan has introduced new restrictions in some areas. Bogota, Rio de Janeiro and Johannesburg have also developed some areas as low emission zone.

Momento presentation

- There are multiple opportunities in the mobility sector that cities can implement to address its impact on climate concerns.

Round Table 2:- Innovation Challenges (Sponsored by GIZ)

The emerging wave of innovations will shape the future of urban mobility in India. Latest innovations and entrepreneurial ventures is driving the future of urban transport digitalization in India. This will harness the power of technology to solve urban mobility challenges making cities transport smarter, efficient and sustainable. In recent years Indian cities have seen a surge of start-ups offering digital solutions and mobility services in different facets of urban transport. By leveraging innovations and scalable technology start-ups have the potentials to develop impactful solutions serving as catalysts for socio-economic development and transformation. Through these platform these start-ups will get the chance to pitch their innovations before an expert jury and scale up the selected innovations in Indian cities.

Innovations related to the development and management of smart infrastructure to support urban mobility include intelligent transport systems, traffic management systems, smart ticketing and payment systems, interoperable systems with data sharing, systems for supporting electric vehicle infrastructure, micro mobility integration, etc. Solutions leveraging digital technologies to enhance the planning efficiency, reliability operational effectiveness of public transportation system and maintaining a satisfactory service level. This includes smart scheduling, fleet management, predictive maintenance, real time monitoring, optimisation of routes and services, etc. The presentation by the participants were assessed by the Panelists/ Juri Members to select three better ones.

Jury Members-
i. Mr. Yogesh Antil, Director, MoHUA ii. Ms. Bhawna Bhatnagar, Co-Founder, We Founder Circle, Mumbai. iii. Prof. Ashish Verma, Professor, Indian Institute of Science (IISc), Bangalore iv. Mr. Anand Chennira , Ex Chief Strategy Officer, Sun Mobility, Bengaluru.
Finalists:
Urban Vind
i. Mr. Pawan Seshadri Venkates
Meiro Mobility Private Limited
ii. Mr. Sarang Deshpande iii. Mr. Rupesh Bagde iv. Mr. Neeraj Ganji v. Mr. Durgesh Rajak vi. Mr. Anil Deshpande

	vii. Mr. Gaurav Chale viii. Mr. Heet Shah
Automicle	
	ix. Mr. Jef Heyse
MCS Cargar Private Limited	
	x. Mr. Raj Anupam xi. Mr. Kayavan Shah xii. Ms. Pranjal Preet
Transit Intelligence LLP	
	xiii. Mr. Ravi Gadepalli xiv. Mr. Lakshay Taneja xv. Mr. Aaditya Bhamidipati xvi. Ms. Nikita Baliga
Staex	
	xvii. Mr. Alexandra Mikityuk
Nayan Tech	
	xviii. Mr. Jayant Ratti xix. Mr. Umang Gupta

Highlights of Discussion and Outcome

- Software solution are available to perform live tracking.
- Auto and IPT improves last mile connectivity.
- There are Apps like Daksh which help in Route network planning, service schedule, charging infrastructure and management to improve effectiveness of bus service.
- Automicle enabling the internet of mobility also enable any platform/ App to offers mobility service.

Interaction by the panelists

Round Table 3:- Streamlining Urban Freight (Sponsored by TERI)

Freight transport cause major GHG emission using heavy diesel vehicles. It is also a key source of urban air pollution. This includes use of light, medium and heavy duty vehicles. TERI study reveals that with the growing affordability of rising urban population the demand for freight in urban areas is projected to increase by 1.8 fold by 2030 and by 6.7 fold by 2050 after 2019. There is also a rapid growth in E-commerce and Q commerce (Quick Commerce) deliveries adding substantially to transport activities. India is emerging as one of the world fastest growing e-commerce market projected to hit USD 350 billion by 2030 from USD 75 billion in 2022. Urban freight segment is primarily catered by two wheelers, three wheelers. Small and light goods vehicle also add to the negative externalities such as air pollution or emission, congestion and safety.

Inadequate infrastructure, poor last mile connectivity and micro hubs mainly are the reasons for the congestion. All these call for redefining local and hyperlocal logistic system optimising last mile deliveries and micro hub operations by exploring sustainable cutting edge solutions like the use of electric vehicles, drones, artificial machine learning, etc. These interventions would lead to reduction in emission and ease congestion. Additionally, with the help of data analytics and advanced route optimisation algorithms delivery efficiency could be improved for travel time and distance minimized by delivery vehicles.

Chairperson - Dr. Vikas Kumar, Managing Director, Delhi Metro Rail Corporation Ltd., New Delhi.

Co-Chair - Mr. E. Srinivas, Joint Secretary, The Department for Promotion of Industry and Internal Trade (DPIIT), New Delhi.

Moderator - Mr. Sharif Qamar, Fellow & Associate Director, Transport and Urban Governance Division, TERI

Speakers -

i. Mr. Namit Jain, Founder and CEO, Zen Mobility, New Delhi

ii. Dr. Mayank Dubey, Assistant Professor (Transport Planning Department) and Coordinator (Centre of Excellence in City Logistics Management), SPA-Bhopal

iii. Ms. Priti Shukla, Program Manager-Electric Mobility, Shakti Sustainable Energy Foundation.

iv. Mr. Nitin Nair, Senior Vice-President, ONDC
v. Mr. Uday Narang, Founder, Omega Seiki Mobility.
vi. Mr. Deepak Baindur, Head, Green Freight Project, GIZ, New Delhi.
vii. Mr. Abhijit Lokre, Founder Partner, The Urban Lab.
viii. Ms. Pritha Ghosh Chatterjee, Senior Principal Transport Planner, Systra
ix. Mr. Amegh Gopinath, Lead - Electric Mobility & NDC-TIA, GIZ India.
x. Dr. Gaurav Singh, Chief Technology Officer, Adani Group

Highlights of Discussion and Outcome

- Indian freight demand which was about 257 Billion tonnes – Kilometers (BTKM) in 1980 increased to 3090 BTKM in 2017 (NTDPC-2014 OECD – 2021). It is likely to increase by 1.8 times by 2030-31
- Urban freight traffic contributes about 15% of total vehicular movement. Freight movement is largely dependent on ICE vehicles and a small share of CNG vehicles.
- Urban freight significantly contributes to transport emission, congestion and safety.
- India is one of the fastest e-commerce market in the world. It is projected to reach $ 325 billion by 2030 experiencing significant growth. Major hubs for e-commerce are Karnataka, Delhi, Maharashtra, Tamil Nadu and Andhra Pradesh.

Panelist on the Dias

- With growing demand of E-Commerce and Q-Commerce addressing the freight challenges, emission, congestion, etc. becomes crucial.
- Key challenges in urban logistic in India are rapidly changing landscape, infrastructural constraints, policy and regulatory support, vehicle technology, etc.

- Data required for policy making in freight movement is lacking. There is need for developing sound partnership among stakeholders for fruitful feedback.
- National logistic policy be integrated with A.I. and IOT system.
- Statutory mobility and logistics be integrated for better planning including last mile connectivity modes in freight movement.
- Time is ripe for transition from ICE to E.V.
- The concepts of green freight, city logistic plan, data integration, one district one platform, supply chain, time and price sensitive aspects, green and sustainable energy zero emission trucks, etc. should be promoted vigorously.
- Digital twin platform for quick transport solution be developed in collaboration with Gatishakti and MoRTH initiatives.

Momento presentation ceremony

- Tailor made solutions are required for complete logistic plan, e-commerce and quick commerce.

Round Table 4:- Active Mobility for All: Redefining India's Urban Commute (Sponsored by GIZ)

Active mobility is vital for addressing multiplicity of challenges in urban areas. It helps in improving livability, reducing environmental impact, curbing pollution while enhancing overall mobility. Walking and cycling promote healthier lifestyles, reduce vehicular congestion and resultant emission. Recognizing the above facts the government of India launched several initiatives that foster active mobility. Programme such as streets for all and cycle 4 change are inspiring cities to create safe and accessible spaces for pedestrians and cyclists. Initiatives under the "Smart City Mission" and the "CITIIS" (city investment to innovate, integrate and sustain) program focus on strengthening non-motorized transport infrastructure as driver to sustainable urban growth. Notwithstanding these timely initiatives, pressures of urban growth and limitation of cities to rapidly upscale and sustain efforts in planning fatal accidents of pedestrians and cyclists do happen. Nearly 40 percent of such accidental deaths involve vulnerable road users. Pedestrians accounts for 17 percent of total fatalities and the cyclists 3 percent. In addition, street designs that are not perceived as safe, pedestrian pathways and non-existent cycle lanes could make users thing several times before choosing non-motorized modes of transport.

It calls for paradigm shift in the manner by which urban infrastructure for mobility is created. Some city specific initiative such as Pune streets program, Bengaluru Tender SURE. Delhi Metro's MMI initiatives have helped in improving infrastructure for pedestrian and cyclists. These cities have focused on retrofitting the existing footpaths and cycle lanes for active mobility. In other cases, Chennai, Govt. of Odisha, Uttar Pradesh and Gujarat have also made efforts on the similar lines to develop institutional capacity, knowledge base for active mobility at local level.

The session had participation of national and local level authorities, private organizations, experts involved in improvement in mobility. Round Table discussions delved on the following issues:

- Lessons drawn in active mobility from other countries.
- Challenges faced in implementation and maintenance of active mobility infrastructure and enforcement of practices to prioritise pedestrian and cyclists.
- Taking up Pilot Street program for complete streets.
- Mechanism for prioritizing active mobility aspects in planning, designing and engineering of road infrastructure.

Chairperson - Mr. Shalabh Goel, Managing Director, NCRTC.

C0-Chair - Mr. Jitendra Tyagi, MD, Uttarakhand Metro Rail Corporation Limited.

Moderator - Zohra Mutabanna, Team Lead, NMT expert, SUM-ACA.

Speakers -

i. Ms. Aswathy Dilip, Managing Director, ITDP India
ii. Prof. Ashish Verma, Professor, Transportation Systems Engg. (TSE), Convenor, IISc Sustainable Transportation Lab. (IST Lab.), Dept. of Civil Engg., Indian Institute of Science (IISc), Bangalore
iii. Ms. Sujata Hingorani, Co-Founder and Director, Oasis
iv. Ms. Rana Amani, Mobility Specialist, GIZ
v. Mr. Pawan Kumar, Associate TCP, TCPO, New Delhi
vi. Ms. Thysz Estrada, Marketing Consultant, Cycling activist.
vii. Mr. Navdeep Asija, Director, Punjab Road Safety and Traffic Research Centre.
viii. Ms. Shalini Agarwal, Municipal Commissioner, Surat Municipal Corporation, Surat.
ix. Mr. Sourav Dhar, Programme Lead, CEEW

Highlights of Discussion and Outcome

- Active mobility is required in the future of sustainable urban development in India.
- There are various gaps in mobility system in terms of planning and policy gaps, lack of coordination among various agencies such as public works dept., traffic police, citizens and users, etc., enforcement and accountability and sustainable funding models.
- Scaling up successful pilots for city wide replication is problematic due to funding, political will, technical know how, etc. The need is to ensure scalability from the outset.
- Modalities have to be found to engage city authorities with residents, businesses and local community to build support for expanding pilot projects.

- Cities also face technical and logistic challenges in scaling up active mobility infrastructure like space constraints, retrofitting existing infrastructure, budget constraints, etc.
- There is a need to create an active mobility mindset among planners, engineers and the people.
- It requires paradigm shift in urban planning, design and engineering of road infrastructure.
- Change in perception is required for walking and cycling particularly in cities where car ownership is seen as a status symbol.
- Awareness campaign be launched to promote the benefits of active mobility such as health, safety and environmental impacts.
- Data and technology be leveraged to demonstrade the benefits of active mobility like bike sharing apps, real time pedestrian data.
- Government steps to ensure making active mobility an integral part of all future development projects and NMT prioritization at the policy and planning stage.
- For active mobility, collaboration with industry is essential.
- Active mobility has to be resilient in crises situation.
- Target should be to have complete active mobility system in the cities by 2047 so as to be part of Viksit Bharat objective.
- There has to be behavioural change for parking and movement and sufficient budget allocation for NMT.

Deliberation in the session

Round Table 5:- Templates of Urban Transport Solutions for Small and Medium Cities in India (Sponsored by CEEW)

With over 4000 cities in the population of 20,000 – 3,00,000 India's tier 3 cities are expanding rapidly at twice the growth rate of Mega cities. Transport demand in these towns having 30 percent urban population is critical in the context of new India. Planning for these cities need to retain their size as compact cities and to provide the transport infrastructure which act as catapult for low carbon urban growth. Government with its ambitions schemes such as smart city and the PM e-bus sewa has extended the urban transport services in 169 large cities but it would be prudent that small and medium size cities in the country are also provided urban transport facilities.

The session supported by USAID Cleaner Air and Better Health (CABH) project and Bloomberg philanthropies deliberated on various mobility solutions that could be templatised and deployed in small and medium cities in India. Round Table focused on developing practical templates of existing best practices presenting the first set of sample city data covering problems and challenges.

Chairperson - Dr. Surendrakumar Bagde, IAS Additional Secretary, Ministry of Housing & Urban Affairs. (MoHUA), Govt. of India.

Moderator - Dr. Himani Jain, Senior Programme Lead, CEEW

Panelistss -

i. Prof. Shivanand Swamy, Professor Emeritus, Center of Excellence in Urban Transport (CoE-UT), Ahmedabad
ii. Mr. Dhanuraj, Founder-Chairman, Centre for Public Policy Research (CPPR)
iii. Mr. Prasanna Patwardhan, President, Bus & Car Operators Confederation of India, BOCI.)
iv. Mr. Harpal S. Dave, Additional chief town planner, Ahmedabad Urban Development Authority, Govt of Gujarat.
v. Prof. Gopal R. Patil, Professor, IIT Bombay
vi. Mr. Navdeep Asija, Director, Punjab Road Safety and Traffic Research Centre, Govt of Punjab
vii. Smt. Anudeepika Jain, Public Policy Lead -

India and South Asia, Uber

viii. Mr. Chander Sekhar Khare, MD, Haryana Mass Rapid Transport Corporation limited.

ix. Mr. Krishna Khanna, Programme Associate Sustainable Mobility, CEEW

x. Mr. Sourav Dhar, Programme Lead, CEEW

xi. Dr. Nikita Bhakuni, Sr. Associate Professor, Faculty of Planning, CEPT University

xii. Shri. Sooraj Nair, Head of Operations, Tukxi

xiii. Dr. Monika Kashkari, Special Officer, DULT, Bengaluru.

xiv. Dr. Om Prakash, IAS, Municipal Corporation, Junagadh

xv. Pramoj Sankar, MD, KSRTC

xvi. Shri. Soumitri Das, Team Lead, USAID

Highlights of Discussion and Outcome

- One third of total trips are by NMT in small and medium cities. Similarly, 1 in 3 trips are on shared modes with substantial regional trips.
- NMT is a pre-requisite to meet majority demand and for enhancing public transport.
- Electric vehicles like Rickshaw as IPT mode share large number of trips in small and medium cities. But not much efforts made in formalizing the IPT sector.
- Micro and minibuses are required to cater the large volumes and regional demand. Planning and regulation of these vehicles be given priority attention.

Interaction between Panelists and delegates

- Average area of 10 small and medium cities across India is 100 sq. km. distance between city core and outskirts is about 5 km and majority of the cities are 15 minutes cities Integrated approach be followed to sustain compact cities.

Round Table 6:- Market Opportunities and Innovation Trends in the Metro Systems in India: A Future Outlook (Sponsored by USAID Embassy of Spain)

Population growth and increasing urbanization level has led towards exponential development of infrastructure in the country. Metro system and its sustainability play a key role in the development of tier 1 to tier 3 cities as urban transport also lead to urban transformation. Spanish Companies have taken note of expansion of system in the last decade and its positive impact on infrastructure industry as they are interested to continue with their commitment in the progress of Indian infrastructure. They want to capitalize the unique opportunities in the medium and long term in the sector. The Spanish companies are desirous for contribution to local requirements using newest innovation technology by establishing local production units and transfer of technology and rich experience.

In this Round Table, leading Spanish Companies had close interaction with Metro Companies in India, state Governments, financial institutions and local experts so as to explore opportunities for partnership in the context of sustainable and thriving urban transport in India.

Chairperson - Ms. Ashwini Bhide, Managing Director, Mumbai Metro Rail Corporation Limited, Mumbai

Moderator - Mr. Sharad Saxena, Principal Transport Specialist, Asian Development Bank (ADB), New Delhi

Panelists -

i. Mr. Shravan Hardikar, Managing Director, Maharashtra Metro Rail Corporation Limited.
ii. Mr. Gonzalo Alfonso Navarro Hernández Counsellor, Economic Commercial office, Embassy of Spain, Nueva Delhi
iii. Mr.Enrique Huertas Garcia, CEO, Colin Buchanan
iv. Mr. Sandip Ray, Country Manager, Ardanuy India.
v. Mr. Vinay Kumar, Commercial Director, CAF India.
vi. Mr. Arshad Ali, Managing Director, Cemosa.
vii. Mr. Sukumar Kolli, Managing Director, Typsa India.
viii. Mr. Tarun Paliwal, Managing Director, Zitron India.

ix. Mr.Guillermo Burgos Barroso, Area Manager South Asia, LDA Audiotec.

x. Prof. Uttam Kumar Roy, IIT Roorkee.

xi. Mr. Ravi Ramachandran, Managing Director, Motorola Solutions India Pvt. Ltd.

Views sharing by the Panelists

Round Table 7:- Building 15-Minute Cities: A Pathway to Sustainable Urban Mobility (Sponsored by ITDP & IBI)

As per UN projection (2023) about 50 percent of India's population will be urban by 2050. With the growth of urban population, cities expand and the average trip length also increases. All such growth pose challenges in providing sustainable mobility solution to the citizens. The 15 minutes city concept promotes the idea that most daily needs can be met within a 15 minutes walk or cycle. The concept provides an opportunity to enhance the quality of urban life and help in reduction of greenhouse gas emission and improve the health of people and social equity.

In this context transit oriented development principles now being promoted in India emphasized on compact development, mixed use neighborhood, promoting walking and cycling, connect, shift, etc. With TOD, cities can reduce dependence on private vehicles and foster a more inclusive and sustainable urban environment as conceptualized in 15 minutes city.

Cities like Paris and Melbourne have successfully implemented the 15 minutes city concept. Their commitment to sustainable mobility modes, combined with compact urban planning has resulted in vibrant, mobile and environmentally conscious urban spaces. The following elements of a 15 minutes city are also inspired by TOD principles.

- Walk – develop neighborhood that promote walking
- Cycle – promote safe cycling infrastructure
- Connect – create dense networks of streets and paths
- Transit – Locate development projects near high quality public transport
- Mix – Mixed use both economic and demographically
- Density – Optimize density and match transit capacity
- Compact – Create neighborhoods with short transit comments

With 15 minutes cities apart from strengthening infrastructure, it also promotes that how people will live, move and interact within urban environment. Discussion in the round table explored the challenges and opportunities for implementing the 15 minutes city concept in Indian urban context. It also dwell on identifying the policies and planning framework necessary for development of 15 minutes cities. In the session best practices and lessons learned from other cities were also shared.

Chairperson - Mr. Mukund Kumar Sinha, Senior Transport Specialist, Asian Development Bank

Moderator - Ms. Aswathy Dilip, Managing Director, ITDP India

Co-Moderator - Mr. Sandeep Venkataramu, Senior Associate and Studio Lead - Urban Design, Arcadis IBI Group.

Speakers -

i. Mr. Shekhar Singh, IAS, Commissioner, Pimpri Chinchwad Municipal Corporation, Government of Maharashtra.
ii. Ms. Shalini Agrawal, IAS, Commissioner, Surat Municipal Corporation, Government of Gujarat.
iii. Mr. Manjunath Sekhar, Head, Sustainable Urban Mobility-Air Quality, Climate Action and Accessibility (SUM-ACA), GIZ
iv. Ms. Zohra Mutabanna, Team Lead, GFA Consulting Group
v. Dr. Shalini Sinha, Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, Ahmedabad
vi. Ms. Sarika Chakravarty, Team Lead, Urban Shift
vii. Mr. Ryan Christopher Sequeira, Senior Associate and Studio Lead - Land Economics & TOD, Arcadis IBI Group
viii. Mr. Anuj Malhotra, General Manager, Planning & Urban Development, Srinagar Smart City Limited.
ix. Ms. Priya Singh, Co-Founder and Director, Chalo Mobility

Highlights of Discussion and Outcome

- Indian cities have moved from high density mixed use to low density single use causing urban sprawl.

- While Indian cities are stuck in congestion, global cities are implementing 15 – minutes neighborhood.
- In Singapore the concept is 20 minutes town and 45 minutes city by the year 2040. These goals are set as a part of land transport Master Plan 2040 which encompasses more connected, sustainable and people centric transportation system.
- In Paris smaller interventions throughout the city network is on decentralization. It is a good tool for brown field redensification.
- In India also some initiatives have been taken in Chennai in its mega streets project. It has adopted non-motorized transport policy prioritizing pedestrization of streets. About 170 km. of street transformation taken along bus routes. Pedestrians plaza developed in the city to improve accessibility across six neighborhood to 42 metro stations, 21 railway stations, 911 bus stops, 610 schools and 220 economically weaker section settlements.

Panelists initiating the discussion

- Pimpri – Chinchwad adopted non-motorized transport policy in 2021 and Parking policy in 2018. Master Plan of the city aims to transform Pimpri – Chinchwad into a livable city by 2030 by transforming it into small NMT friendly neighborhoods. BRTS network of 45 km provide a high quality public transport to connect these 15 minutes neighborhood.
- Story of Bhubaneshwar is also similar. It has adopted street design regulations that enforces all agencies involved in creating complete streets to follow the guidelines, 80 km of street network identified for implementation. It also introduced city wide robust public bus service with integrated first and last mile EV services.
- For implementing 15 minute city concept one option is to improve the walkability of the city by reducing the grid size.
- Another option could be to improve access to other neighborhoods through high quality public transport. The


Audience posing the question

neighborhoods should be compact, complete and connected.

- Benefits of 15 minutes city concept need to be tapped. It will help in reducing carbon footprints, restricting urban sprawl. It will prioritise neighborhood level economic activity and promote decentralized economy. In respect of equity, essential services will be available within a 15 minutes besides promoting equal access and bike and walkways to promote elements of walk, cycle, connect and shift. Key considerations in this approach are affordability and gentrification risks and reducing car dependent neighborhood.

Momento Presentation

- Melbourne has plan for 20 minutes neighborhood concept. Key consideration in this approach are restricting urban sprawl and existing urban layouts as well as improving public transport connectivity.

Round Table 8:- Standardising Mobility Systems in Core Areas of Indian Cities (Sponsored by CRDF & The Urban Catalyst)

Core areas of Indian cities have a high concentration of population, jobs, traditional markets, major transportation nodes such as regional rail stations, bus terminals, etc. These functions in core areas attract large number of passenger and freight trips from different parts of the city leading to congestion, pollution and increased greenhouse gas (GHC) emissions. Higher number of trips in the core areas and the freight traffic movement often conflict with passenger movements. With rapid urbanization and spatial growth the focus of cities is predominantly on developing transport infrastructure and services in the newer development areas. In city center areas some actions towards traffic management and parking are taken. But in most cities such actions are uncoordinated and in piece-meal manners yielding limited improvements in addressing congestion and pollution problems. Hence, an area based integrated approach is required to facilitate actions to overcome transportation and air pollution challenges in the core areas. Electro mobility solutions are also being provided to reduce air pollution.

Low emission zones (LEZs) have become one of the most effective solutions adopted by international cities like London, Seoul, Haifa, Beijing and Jakarta to tackle the challenges of air quality at the city level. The area based approach was followed by restricting vehicles across a defined area specifically core areas of the city. The measure was successful due to the presence of robust public and active transport system in these cities which offered good alternatives to the road users. The establishment of low emission zone in Indian cities with restriction of vehicles may not be that effective if worked out in isolation as has been the case in some international cities. The session deliberated all such issues at length to workout effective and viable solution in core areas.

Chairperson - Mr. Ashwini Kumar, IAS, Principal Secretary, Urban Development and Urban Housing Department (UD & UHD), Gujarat.

Moderator - Prof. H. M. Shivanand Swamy, Professor Emeritus

Co-Moderator - Dr. Shalini Sinha (Moderator), Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, Ahmedabad

Panelists -

i. Ms. Anumita Roy Chowdhury, Executive Director, Research & Advocacy, Centre for Science and Environment (CSE), New Delhi

ii. Mr. Vivek Ogra, Partner, Transport, Enrst and

Young LLP (EY), Ahmedabad

iii. Ms. Kalpana Viswanath, Co-Founder & CEO, Safetipin, Gurugram

iv. Ms. Sonal Shah, Founder, The Urban Catalyst (TUC)

v. Mr. Sudhir Badami, Independent Consultant, Indian Institute of Technology. Mumbai.

vi. Mr. Amegh Gopinath, Component Team Leader at NDC-TIA India, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

vii. Mr.Safin Hasan (IPS), DCP Traffic Police (East Zone) Ahmedabad

viii. Mr. Vishal Khanama, i/c Deputy Municipal Commissioner, Ahmedabad Municipal Corporation and General Manager of Bus Rapid Transit System (BRTS), Ahmedabad

Highlights of Discussion and Outcome

- With exponential growth of personalized vehicles dependency on private and intermediate public transport is increasing. There is also rising proportion of fatalities in road crashes.
- In low emission zone regulatory measures are taken to tackle air quality challenges by restricting access for polluting vehicles.
- London has introduced charges for polluting vehicle to access the city. Similarly, the first e-vehicle only zone coming soon in India in the Kevadia district of Gujarat.
- Possible interventions for developing low emission zone include the following. Plan be prepared for efficient routes and timings for movement in such areas. Improve walkability and management of vehicular movement. Integration of public transport, IPT and NMT. Electrification of two wheelers, passengers and goods three wheeler and LCVs.
- The synergy between vehicle electrification and higher NMT and public transport share has significant impact on pollution reduction.
- There is a need to demarcate low emission zone for regulating air pollution.
- Technology be used in identifying the problem at early stage so as to make policy immediately to tackle the issue.

- A.I. be used to identify the vehicles which are polluting more and policy may be formulated accordingly.

Combined view of Dias and Audience

Round Table 9 :- Role of PPP in deployment of Standardized Digital Public Transport Infrastructure and Services (Sponsored by Chalo Mobility)

Traffic congestion and deteriorating air quality in Indian cities among others are also caused by increasing use of personal transport for daily commute. To encourage a shift away from private vehicles it would be imperative to provide safe, comfortable and efficient public transport options. It is also equally important to provide seamless transit system with easy accessibility. In Indian context, reimaging urban mobility with the aid of information and communication technology (ICT) is crucial to make public transport the preferred mode of travel. To enable this transformation the private sector must collaborate with public transport authorities by leveraging its technological and financial capabilities. There are many start-ups in the private sector working to introduce technology in public transport sector to optimize its operation, integrate multiple modes and to enhance consumer convenience. By combining the private sector expertise with the public transport authority resources, we can accelerate the pace of change affordably.

The session explored the modalities to unlock the full potentials of Public Private Partnership (PPP) and to build a standardized digital infrastructure to transform the public transport landscape.

Chairperson - Dr. Surendrakumar Bagde, Additional Secretary, Ministry of Housing & Urban Affairs, New Delhi

Co-Chair - Ms. Shilpa Shinde, Managing Director & Special Commissioner, Delhi Transport Corporation, Government of National Capital Territory of Delhi, New Delhi.

Moderator - Ms. Priya Singh, Co-Founder and Director, Chalo Mobility

Panelists -

i. Dr. Owais Ahmad Rana, Chief Executive Officer, Srinagar Smart City Ltd.
ii. Mr. Mohit Dubey - CEO, Chalo Mobility
iii. Mr. Pawan Mulukutla, Executive Director, WRI, Bengaluru
iv. Shri Shan MS, COO, Namma Yatri.
v. Mr. Sanjay Biswal, General Manager, Ops, CRUT

vi. Mr. Abhijit Sengupta, Country Director, India,
Asia Pacific Smart Card Association (APSCA)
India, Noida.

Highlights of Discussion and Outcome

- Data generated in the process be made public for wider use.
- PPP has both positive and negative effect. Its involvement be made by taking all such aspects into consideration.
- Involvement of private sector should not be for short term benefits only but should also be for long term.
- Incentives be linked to outcome rather than delivery.
- Relationship with financing institutions and other private agencies should be established right at planning stage.
- PPP is a partnership and not a contract, its rich experience be used for data sharing.
- Openers, inclusivity and affordability are the key factors for the success of PPP.

Momento presentation at the end of the session

Envisioning an ONDC-Enabled Pan-India Mobility Network: Scalable Multi-Modal Solutions with Streamlined Integration and Opportunities for Innovation (Sponsored by ONDC)

A Special Round Table was organized and sponsored by Open Network for Digital Commerce (ONDC) on envisioning an ONDC enabled Pan India Mobility Network – scalable multi-modal solutions with streamlined integration and opportunities for innovations. Panelists in the session were as under :

i. Ms. Usha Padhee, Principal Secretary, CRUT
ii. Mr. Ravish, Founder, Sequel String
iii. Mr. Alby John, MD, MTC
iv. Mr. Sanjay Kumar, Director Systems, Kochi Metro Rail Limited.
v. Shan M.S, Chief Growth Officer, Juspay Technologies.
vi. Mr. Pravesh Biyani, Professor , IIT Delhi
vii. Mr. Nitin Nair, Senior Vice President, ONDC

F Conclave : Harmonising Standards for Optimizing Urban Mobility: Way forward in Indian context

The UMI-2024 had organized one Conclave Session on the important aspect of conference theme focusing on "Harmonising Standards for Optimizing Urban Mobility: Way forward in Indian context". It emphasized that as there had been adequate development of different transport modes in Indian cities, standardisation should help by way of economies of scale and seamless interoperability and integrated mobility. The panel defined the strategies for harmonising standards in urban mobility across diverse geographical and operational contexts. It also addressed technological, regulatory and infrastructural aspects crucial for fostering interoperability and efficiency.

The discussion also encompassed urban mobility standards, including but not limited to technological standards such as interoperability including that of smart city platform, data exchange protocols, regulatory standards in terms of licensing frameworks, safety, infrastructural standards such as guidelines for transport hubs, infrastructure for EVs and environmental and sustainability standards comprising emission norms green mobility initiatives, etc. Key issues in the discussions also revolved around challenges and opportunities from emerging technologies namely technology in vehicle communications, mobility as a service, and disparities in urban mobility standards. It also covered best practices and case studies from other cities and regions that have successfully implemented harmonized standards. Besides, strategies for cooperation and alignment towards common standards, urban freight and quick commerce were also deliberated. The panel comprised experts from diverse background such as urban planning, technology, regulation and urban transport to have multi-faceted discussions

Chairperson - Dr. Bimal Patel, Managing Director, HCP Design, Planning and Management Pvt. Ltd., Ahmedabad

Co-Chairperson- Dr. Mangu Singh, Former Managing Director, Delhi Metro Rail Corporation Ltd., New Delhi

Panelist -

i. Ms. Ashwini Bhide, Managing Director, Mumbai Metro Rail Corporation Ltd., Mumbai
ii. Mr. Mohinder Singh, Former Dean, The Land Transport Authority (LTA) Singapore
iii. Mr. Ravi Peri, Director, Transport Sector, Asian Development Bank
iv. Mr. Partha Sarathi Reddy Chevuru, Programme

Director, Island, PPP, Niti Aayog New Delhi

A Broad view of the proceedings in the Conclave Session

G. Valedictory and Closing Session

The valedictory session of the 17th UMI-2024 conference was held on 27th October, 2024 from 14.00 hours onwards. Shri Manohar Lal Khattar, Hon'ble Minister of Housing and Urban Affairs, Govt. of India was the Chief Guest in the session who also delivered the Valedictory Address. Shri Tokhan Sahu Hon'ble Minister of State for housing and Urban Affairs, Govt. of India, Shri Harsh Sanghavi Hon'ble Minister Transport Department (Independent Charge) Govt. of Gujarat also graced the occasion. A large number of dignitaries, delegates and award winners were present in the session. Brief outcome of the session is as under : -

Welcome address and Opening Remarks : Shri Srinivas R Kathikithala, Secretary, Ministry of Housing and Urban Affairs, Government of India

Address : Shri Tokhan Sahu, Hon'ble Minister of State for Housing and Urban Affairs, Government of India

Valedictory Address : Shri Manohar Lal Khattar, Hon'ble Minister of Housing and Urban Affairs, Government of India

Distribution of Awards for "Excellence/Best Practice Projects in Urban Transport" by Shri Manohar Lal Khattar, Hon'ble Minister of Housing and Urban Affairs, Shri Tokhan Sahu, Hon'ble Minister of State for Housing and Urban Affairs, Shri Harsh Sanghavi, Hon'ble State Minister Transport, Govt. of Gujarat.

Launch of UMI 2025 Conference by Shri Manohar Lal Khattar, Hon'ble Minister of Housing and Urban Affairs and other dignitaries on the Dias.

Vote of Thanks : by Shri Jaideep, OSD (UT) & Ex-Officio Joint Secretary, Ministry of Housing and Urban Affairs, Government of India

Dignitaries joining the valedictory session

While welcoming the Hon'ble Minister MoHUA and other dignitaries on the dais Shri Srinivas R Kathikithala, Secretary, Ministry of Housing and Urban Affairs, Government of India mentioned that 3 days conference ended after threadbare deliberations on various topics and aspects under the main theme "Standardisation and Optimisation of Urban Transport Solutions". In his opening remarks he mentioned that with the growth of

urbanization level urban transport demand is also increasing significantly so is the budget allocation. In 2014 about Rs. 1400 crore was provided for urban development which has now increased to Rs. 18200 crore. Metro Rail network which was 218 km. in 2014 has now increased to 981 km. Urban Mobility has become key factor in urban development. Apart from providing funds for Metro Rail projects in the country, Ministry is also funding Smart City Mission, AMRUT and now PM E-Bus Sewa scheme.

UMI Conference provides an excellent platform for knowledge sharing in the field. The conference had a special session for Metro Rail in which MDS of Metro Companies participated. 3 days conference dwelt on innovative solutions for sustainable, efficient and equitable urban transport system. All stakeholders have to make collaborative efforts for developing strong partnership in urban transport projects implementation.

In his address Shri Tokhan Sahu, Hon'ble Minister for State Ministry of Housing and Urban Affairs said that Urban Mobility India Conference is an important platform for discussion and interaction on current and topical interest issues and emerging trends in urban transport. Since 2008 the UMI conference has covered a large number of themes in urban transport. With all the latest development in the field urban transport has seen lot of changes in its operation and management. We have to make our transport efficient, affordable and sustainable in the long term so as to achieve the objective of Viksit Bharat by 2047.

Shri Manohar Lal Khattar Hon'ble Minister for Housing and Urban Affairs in his valedictory address stated that urban mobility system has helped in improving the quality of life in cities. Various schemes initiated by the Ministry such as Smart City Mission, AMRUT, E-Bus Sewa, Non-Motorized transport have made positive impact. In the last one decade Metro Rail which was operational in 5 cities in 2014 has made its inroads in 23 cities now. In addition, 964 km of metro rail network is under construction. Right now metro has achieved a ridership record of 10 million passenger daily. Our Metro system is third largest in the world after China and USA. We have migrated to National Common Mobility Card (NCMC) with which all modes in the city are planned to link. No doubt we have come a long way in development of urban transport system but journey is yet to be completed. With continuous expansion of urban areas we have to increase the pace to strengthen the infrastructure and make the cities more resilient.

Chief Guest delivering the Valedictory address

Extension of public transport system is required in tier 2 and tier 3 cities. For urban mobility all concerned authorities have to work together. We should promote PPP in urban transport projects. He applauded the efforts of Ministry of Housing and Urban Affairs as well as Govt. of Gujarat in this regard and also for organizing this conference successfully. He pointed out that in our efforts for providing mobility and improving accessibility no one should be left behind.

After the Valedictory address award ceremony started where dignitaries on the dais led by Shri Manohar Lal Khattar, Hon'ble Minister, MoHUA gave the awards to the best papers in Research Symposium, best exhibitors, best startup and excellence in urban transport to the winning cities / States. Detail for the awards ceremony is included in the subsequent section.

- **Award Ceremony**

Awards for "Excellence in Urban Transport" were given by Shri Manohar Lal Khattar, Hon'ble Minister of Housing & Urban Affairs, Government of India, Shri Tokhan Sahu, Hon'ble Minister for State, Ministry of Housing and Urban Affairs, Government of India, Shri Harsh Sanghavi, Hon'ble State Minister, Transport Dept. (Independent Charge), Govt. of Gujarat to the winning state/ UTs and cities. Ministry of Housing and Urban Affairs had constituted an Awards Selection Committee for the 17th UMI-2024 comprising 9 members under the chairmanship of Dr. Surendra Kumar Bagde, Additional Secretary (D) in the Ministry. The Institute of Urban Transport (India) had been directed to facilitate in the task assigned to the committee. In all 84 entries were received from 37 cities (16 States and 2 UTs) for awards in 12 categories. For city with Best Freight Transport category no entries were received while for two categories namely city with the Best Green Transport and Running Trophy for the state IUT which has implemented best Urban Transport Projects during the previous year committee did not recommend award. Hence awards for nine categories were given as indicated in the following section.

Award Presentation to the wining States/ Cities

The committee met online for its preliminary meeting on 20.09.2024 in which it agreed on the ground rules to be followed for evaluation and recommendation of entries for awards. The entries were allocated amongst respective technical members for evaluation. Member short

listed at least 3 deserving entries in each category for selection in the next round. First evaluation of entries were presented and discussed in the second meeting of the committee held on 8.10.2024 in hybrid mode. The committee short listed 2 – 3 best entries in each category.

For further evaluation of the short listed entries, representative of respective cities / UTs / State / project authorities were invited to make presentation before the committee on 14 – 15 Oct. 2024 highlighting achievements and their justification for being considered for award. Based on the presentations and clarification sought, the committee recommended the following entries as indicated below :

Category 1 - City with the most Sustainable Transport System

Under this Kochi Metro Rail Corporation Ltd. is the winner. It made well connected efforts to electrify the public transport and IPT modes including catamaran based waterway transport to integrate the islands with the main land. It also had wide outreach and stakeholders consultation to popularize public transport choice. It helped in checking the increase in ownership of personal motorized transport.

Category 2 - City with Best Public Transport System in Capital Region Urban Transport (CRUT) Bhubaneshwar, Orissa

CRUT began with MO-Bus (meaning My Bus) and MO. E Ride in Bhubaneshwar as sustainable urban transport solution. It followed customer centric approach and as such CRUT has become the lifeline for Bhubaneshwar and other cities of Odisha viz. Cuttack Puri, Rourkela, Berhampur and sambalpur.

The revamped MO Bus App and the promotional offers have significantly enhanced digital ticketing to the extent of 25%. CRUT is the first transit agency in India to usher in automatic dynamic bus scheduling as an optimisation measures which enhances its operational efficiency and reduces the cost.

Category 3 – City with Best Non-Motorized System.

Under this category Srinagar Smart City Ltd. (J&K) is the winner. In Srinagar Non-Motorized Transport including NMT infrastructure and NMI system has been developed to complement the Bus and Water Based public transport. A connected and extensive network of about 100 km of walkable footpaths and cycle tracks are developed that serves as a pivot enabling NMT and bridging the existing gaps in first and last mile connectivity. It has a Public System and Public Electric bicycle sharing system with a fleet of over 1000 bicycles and200 electric cycles spread over 180 docking stations.

Category 4 - City with the Best Safety and Security System and Record.

In this category Gandhinagar Municipal Corporation (Gujarat) is the winner. Gandhinagar has established an integrated command and control center (NCCC) to ensure safety and security of its citizens and to provide emergency response as part of the urban transport system. NCCC integrates high definition CCTV cameras, centralised communication networks and emergency notification systems to instill confidence, ensure public safety and streamline city operations to prevent crime. It can serve as a model for other cities aiming to optimize resource utilization.

Category 5 - City with the Best Intelligent Transport System (ITS)

Surat Municipal Corporation (Gujarat) is recommended as the winner under this category. The project has taken up all ingredient of a modern ITS with integrated components such as Transit Management (ITMS) adaptive signaling, automotive fare collection system, passenger information and surveillance. Integrated Transit Management system allows real time monitoring of buses using GPS and mobile applications offering passengers accurate travel information. Automatic Fare collection system facilitates cashless transactions through Surat money card and simplifies seamless travel across different modes of public transport. The automated traffic control system reduced travel time and surveillance and monitoring help policing and enforcing traffic laws.

Category 6 – City with the Most Innovative Financing Mechanism

Jammu Smart City Ltd. is the winner in this category. In Jammu city with its narrow and limited road surface there had been no takers to provide e-auto and e-rickshaw transport services. Jammu Smart City Ltd. while providing admissible subsidy also granted a package of easy repayment of first 12 EMIs so as to facilitate that assets (e-auto & e-rickshaw) do not become non-performing in the teething period. Finance under the scheme flow as direct benefit transfer to the prospective purchaser with commitment from seller and banks. From no takers as earlier to cover over 800 e-auto and e-rickshaws in service now with no NPA, is a measure of success of the Jammu city scheme.

Category 7 – City with Best Record of Public Involvement in Transport.

The committee recommended Bangalore Metropolitan Transport Corporation (Karnataka) as winner under this category. Hosur Srirajpura Layourt (HSR) is covered under this project. BMTC made efforts to promote and enhance prioritasion of bus travel in this area which is indeed commendable. The project was conceived in 2015 as an intra-layout feeder bus service tailored to address the transportation needs of resident’s and provide an efficient public transport link.

The success of BMTC is now amplified by the public demand to enhance the feeder service to connect with public transport and to reduce private vehicle usage by those otherwise affording and preferring to use personal vehicles.

Category 8 – No entry was received under this category "City with the Best Freight Transport System".

Category 9 – City with the Best green Transport. No winner was recommended under this category.

Category 10 – Metro Rail with Best Multimodal integration.

Bangalore Metro Rail Corp. Ltd. (Karnataka) is the winner in this category. In order to provide seamless connectivity with different modes of transport BMRCL has implemented all the five pillars of Multimodal integration. It includes physical integration by providing FoBs, Subways and paved footpath in a radius of 150 m and bus bays on the service road for five most heavy football station. Under operation integration 178 feeder buses provided for 36 metro stations and pedal ports at 10 metro stations with Namma Yatri App.

- Information Integration with Q.R. code provide information on feeder buses at the stations, GTFS static data on schedules shared for ONDC.
- Institutional integration of BMRCL is with Bangalore Metropolitan Land Transport Authority. Under fare and ticketing integration it introduced NCMC facility as well as QR code ticketing and Whats App chat box.

Category 11 – Metro Rail with Best Passenger Services and Satisfaction

In this category Mumbai Metro One Pvt. LTD. is recommended as the winner. It is an operational PPP venture of Mass Rapid Transit System on Varsova-Andheri-Ghatkopar (VAG) corridor. This 11.6 km. corridor with 12 stations provides metro connectivity and is time saver for commuters from almost 2 hours earlier and now reduced to 21 minutes.

The periodic customer satisfaction surveys and online response system data of respondents analyzed by WRI India reveal overall satisfaction of Mumbai Metro Line-I with best passenger services and satisfaction.

Category 12 – Running trophy for the State/ UT which has implemented best urban transport projects during the previous year.

As nothing is reported in the short listed entries as such committee did not recommend any award under this category.

As a summary, the final recommendation of the committee is given in the statement below: -

List of Award Winners

Cat.	Award Category	Winner	
		City	Organisation
1	City with the Most Sustainable Transport System	Kochi	Kochi Metro Rail Limited
2	City with the Best Public Transport System	Bhubaneshwar	Capital Region Urban Transport (CRUT)
3	City with the Best Non-Motorized Transport System	Srinagar	Srinagar Smart City Ltd.
4	City with the Best Safety and Security System & Record	Gandhinagar	Gandhinagar Municipal Corporation
5	City with the Best Intelligent Transport System (ITS)	Surat	Surat Municipal Corporation
6	City with the Most Innovative Financing Mechanism	Jammu	Jammu Smart City Ltd.
7	City with Best Record of Public Involvement in Transport	Bengaluru	Bangalore Metro Rail Corporation Ltd
8	City with the Best Freight Transport System	No Entries	-
9	City with the Best Green Transport Initiative	No recommendation	-
10	Metro Rail with the Best Multimodal Integration	Bengaluru	Bangalore Metro Rail Corporation Ltd
11	Metro Rail with the Best Passenger Services and Satisfaction	Mumbai	Mumbai Metro One Pvt. Ltd.
12	Running trophy for the State / UT, which has Implemented Best Urban Transport Projects during the previous year	No recommendation	-

Under Startups the following 3 entrepreneurs were adjudged as winners by the Jury. Accordingly cash awards of Rs. One Lakh each alonwith certificates were given to them,

i. **Nayan India, Science and Technology Private Ltd., New Delhi**
ii. **MCS CarGAR Pvt. Ltd., Ahmedabad**
iii. **MEIRO Mobility Pvt. Ltd., Vadodra**

The exhibition is a special feature of UMI to propagate and showcase the latest development in urban transport technology and systems, implementation of best transport projects and

dissemination of innovative ideas, presentation of research in the topical areas of interest in urban transport and exchange of good urban transport initiatives and practices in the field.

In all 76 exhibitors from Metro Rail Companies, public and private sectors participated in the exhibition and unveiled their products, technology, projects and transport system for wider dissemination. The list of sponsors, exhibitors, knowledge partners and media partners are attached at annexure – respectively. The exhibition was inaugurated by Shri Bhupendra Rajnikant Patel, Hon'ble Chief Minister of Gujarat on 25th October, 2024. The latest technology particular digital payment in Metro System like Paycraft solutions. Intelligent solutions, ropeways, green mobility, latest progress in Metro system by various Metro Corporations, etc. were of special interest to the esteemed guests, participants and visitors. Exhibitors received many specific quarries from the delegates to solve urban transport problems in their respective cities.

Award Presentation to the Exhibitors

On the whole expo was well received both by the participants and the visitors. Awards for best exhibitors were given to the following promoters.

Prize	Company
First Prize	Delhi Metro Rail Corporation Ltd. and Atlantic Trade Engineers LLP.
Second Prize	Mumbai Metro Rail Corporation Ltd. and Paycraft Solution Private Ltd.
Third Prize	Gujarat Metro Rail Corporation Ltd. and GIZ

After the Award ceremony Hon'ble Minister, MoHUA launched the theme and dates of 18th UMI Conference and Expo 2025. He said that 18th UMI Conference 2025 will be held at Gurugram (Haryana) from 24th – 26th October, 2025 on the theme "Urban Development and Mobility Nexus".

Vote of Thanks

At the end of Valedictory session, Shri Jaideep OSD (UT) & Ex. Officio Joint Secretary, MoHUA proposed a vote of thanks. He expressed his sincere thanks to Shri Manohar Lal Khattar Hon'ble Minister for Housing and Urban Affairs, Govt. of India for sharing his valuable time and delivering the valedictory address. Special thanks to Shri Tokhan Sahu Hon'ble Minister of State MoHUA for gracing the occasion and sharing his thoughts. He thanked Shri Harsh Sanghavi, Hon'ble Minister of State Transport Dept. Govt. of Gujarat. He said that we are extremely grateful to Shri Srinivas R. Katikithala, Secretary, MoHUA for providing continuous guidance and direction in organizing the conference. He expressed his thanks to Shri Rajkumar, Chief Secretary, Govt. of Gujarat for his support.

He thanked to the knowledge partners namely ADB, GIZ, EIB, CEEW, WRI, Urban Catalyst, TERI, New Development Bank, CEPT Ahmedabad, media partners, exhibitors, Spanish Embassy for their collaboration and active participation. He expressed his thanks to all the Chairpersons and Speakers in the Plenary, Technical and other sessions for sharing their expert views in the deliberations in the conference. He thanked CEPT Ahmedabad and its team for organizing the Research Symposium in a systematic way. He gave special thanks to various state, city and metro authorities for their entries for awards and congratulated the winners. He made a special mention of Gujarat Metro Rail Corporation (GMRC) Ltd. for their support and cooperation in organizing this mega event successfully.

He said that our thanks are due to all the media partners, sponsors, exhibitors for taking active part in the conference. He thanked the authorities of Mahatma Mandir Convention Centre and M/s Praveg the Event Manager for their cooperation and support. Last but not the least he thanked all his colleagues in the Ministry for their valuable support, IUT team for active involvement in organizing this mega event.

H. Research Symposium

Research Symposium, as part of 17th Urban Mobility India Conference 2024, was held during 26 – 27 October, 2024 at Mahatma Mandir Convention Centre, Gandhinagar. The event was held under the aegis of the Ministry of Housing and Urban Affairs, Government of India and was coordinated by the CEPT University, Ahmedabad in Collaboration with Institute of Urban Transport (India), Prof. Shalini Sinha coordinated the organization of the Research Symposium. The symposium is a platform to highlight the current research activities in urban transport carried out by academic and research institutes, specially by young researchers. Eligible participants were either existing or recently passed out (Not earlier than May, 2023) students of PG/ Ph.D. The purpose of the Research Symposium is to encourage young researchers working in various aspects of urban transport to present their research work and provide them with an opportunity for networking with fellow researchers and professionals, enhance the capacity in the field of urban transport and contributing towards building up of research data base, dissemination and identification of research thrust in the country.

In line with the theme of UMI – 2024 conference "Standardisation and Optimisation of Urban Transport Solutions" Abstracts for the papers under Research Symposium were invited on the following broad topics.

- Integrated Land use Transport Planning
- Green and Inclusive Mobility
- Public Transport Planning and Operations
- Technological Application in Urban Transport
- Electric Mobility
- Urban Traffic Operations and Safety
- Financing and Governance of Urban Transport Systems
- Mobility Solutions for Small and Medium Towns including Hill Cities

Participation

In all 186 abstracts were received pertaining to different urban mobility topics as mentioned above. Out of 186 abstracts received, 111 were shortlisted by the Peer Review Committee. After acceptance of abstracts, 77 full papers were received. Peer Review Committee finally accepted 41 papers. Subsequently 41 revised full papers were received and finally 38 papers were presented in the Research Symposium. A double-blind review process, which is followed by most of the peer reviewed journals, was adopted throughout and it was made sure that all the papers were reviewed by at least two reviewers. The review scores and comments for the

full papers were sent to the authors. The selected papers were presented in 8 session with 4-5 papers presented in each session.

Accordingly, the Research Symposium was conducted in eight sessions which were moderated by a chair/ co-chair as detailed out below:

Session 1 : Integrated Land use Transport Planning **Chair: Prof. Rutul Joshi, Senior Associate Professor, CEPT University, Ahmedabad** **Rapporteur: Ms. Minal Shetty, CEPT University**	
Authors/ Presenter	**Title of Paper**
Manan Monga, Shubhajit Sadhukhan, Saurabh Choudhary and Aarya Paigwar	Analyzing the Influence of Socio-demographics and Distance to School on Mode Choice for School Trips: A Case Study of Roorkee
Adarsh Yadav and Gitakrishnan Ramadurai	Bicycle Sharing Systems; Catchment Area; Multimodal Transportation; Urban Planning
Nandini Bhimsaria, Shravan G, Agnivesh Pani, Varun Varghese and Avinash Unnikrishnan	Developing Sketch Planning Models to Predict Regional Mode Share in India: An Analysis Focusing on Urban Centre
Rohit Singh Nitwal, Hemanthini Alli Rani and Ashish Verma	A Composite Index for Assessing Sustainability of Urban Transport Interventions
Session 2 : Green and Inclusive Mobility **Chairperson: Shri R. Srinivas, Hony. Secretary, IUT and Former Town & Country Planner, TCPO/MoHUA** **Rapporteur: Ms. Surya Sugathan**	
Authors/ Presenter	**Title of Paper**
Utkarsh Anand and Mohit Dev	Gender-Based Mobility of Urban Poor- A Case of Patna
Punyabeet Sarangi and M Manoj	Travel Behavior of Children to Non-School Destinations
Sarath Kt, Trupti Mishra and Rangan Banerjee	Public Transport Access for Slums: A case of Transport Equity Assessment in Mumbai
Hridya G Muralidharan, Gaurav Tripathi, Agnivesh Pani, Varun Varghese and Avinash Unnikrishnan	How are People with Disabilities Travelling in Indian Cities? Assessing Transit Usage Patterns and Designing Inclusivity Policies
Shreepati Jha, Aadil Moopan, Rahul Kumar Jha and Agnivesh Pani	Predicting a Real Time Passenger Occupancy Using Historical Ticketing Data: A case study of Varanasi, India

Session 3: Planning for Safer Streets **Chairperson: Prof. Nitika Bhakuni, Senior Associate Professor, CEPT University, Ahmedabad** **Rapporteur: Ms. Geetanjali Jayaprakash**	
Authors/ Presenter	**Title of Paper**
Soja R. Joseph, Sanjay Kumar V. S., Archana S. and Jinumol K. R.	Pedestrian Crash Prediction Modelling on a Corridor Based Approach Using Machine Learning Techniques
Arundhati Hakhu and Rutul Joshi	Spatial Narratives of Women's Everyday Negotiations in the City - The Case of Mobility and Safety in Delhi
Karthikeyan Baskar, Bhuvanesh Bharath Alwar Mariappan and Yuvaraj Devaraj	A Methodology for cross-functional and Temporo-Spatial Analysis with Child Pedestrian Crashes in Chennai
Harendra Pratap Singh and Ashish Verma	Identification of Fatality Hotspots for VRU in Traffic Analysis Zones Using Point Kernel Density Estimation Method
Rashi Bhat and Sairam Dasari	Improving Emergency Medical Services through Planning Interventions in Urban Areas: A Case Study of Delhi
Session 4: Technological Advancements in Urban Transport **Chairperson: Prof. GJ Joshi, Professor, SVNIT, Surat** **Rapporteur: Mr Upendra Kumar, CEPT University**	
Authors/ Presenter	**Title of People**
Ajinkya Prashant Pehekar and Shreyas Bharule	Urban Freight Electrification- Integrating Charging Stations with Digital Delivery Lockers in Pune
Lalit Swami, Mokaddes Ali Ahmed and Nitender Yadav	Sustainable Urban Mobility: Analysing Service Quality Gaps Between App-Based and Traditional IPT in Gurugram
Vikram Singh and Amit Agarwal	Modelling On-Road Air Pollution Using Mobile Monitoring: A Case Study of Delhi
Rohit Rathod, Gaurang Joshi and Shriniwas Arkatkar	Evaluating Spatiotemporal Transit Accessibility Based on Gravity-Model: A Novel Framework Using Big Data
Divyansh Khare, Dr. Mohit Dev, Dr. Vikas Nimesh and Anmol Jain	Electrifying India's Road Freight: Challenges and Strategies for Medium And Heavy-Duty Trucks
Session 5: Behavioral Insights into Urban Mobility Planning **Chairperson: Prof. PK Sarkar, Former Professor and HoD, SPA, New Delhi** **Rapporteur: Ms. Ruchi Singhal, CEPT University**	
Authors/ Presenter	**Title of Paper**
Grishma Kharole, **Ayushi Shah** and	Evaluating the Paratransit System in Surat: Insights and Recommendations for Enhanced Service Quality

Gaurang Joshi	
Ann Das and Ashish Verma	Exploring the Hedonic Dimension of Mental Well-Being in Commute Experiences: Insights from the Satisfaction with Travel Scale in the Indian Context
Rohit Rathod and Gaurang Joshi	Study on Travelers' Preferences for Shifting to Metro Rail in Surat, India.
Raj Prajapati,, **Rohit Rathod** and Gaurang Joshi	Effects of Psychological Factors to Adoption Public Transportation for Captive Riders- A Theory of Planned Behaviour Approach
Pooja Bagmar and Pankaj Prajapati	An Investigation of Key Parameters for Sustainable and User-Friendly Public Transportation Systems
Ayush Kaul, Deep Ghadia, Onkar Shinde, Radha Shinde, Tanmayee Deshpande and Dr. Chintaman Bari	How Users Perceived the Same Facility at Different Times of Day? Case Study of Pune Metro

Session 6: Sustainable and Resilient Urban Transport System

Chairperson: Prof. Nitika Bhakuni, Sr. Associate Professor, CEPT University

Authors/ Presenter	Title of Paper
Radhika G and Bandana Jha	Towards Universal Accessibility: A Comparative Study of National and Global Regulatory Frame Works for Inclusive Mass Transit Stations
Anand B and Sairam Dasari	Impact of Urban Floods on Transport Infrastructure: A Case Study of Kochi, Kerala
Shaheem S, Nisha Radhakrishnan and Samson Mathew	Evaluation of Policies for Increasing the Mode Share of Public Transport in a Medium-Sized City
Manisha Sharma and Nitika Bhakuni	Integration of Urban Transport in Climate Action Plans of Indian Cities: An Evaluation and a way forward
Piyush Lalwani, Sai Chand, Abdul Hannan Azad, Vinayak Dixit and Bhimaraya Metri	Traffic Simulation for Natural Disaster Preparedness: Case Study of Dadar Mumbai

Session 7: Public Transport Planning and Operations

Chairperson: Prof. Mukti Advani, Senior Principal Scientist, CRRI and Coordinator, AcSIR-CRRI, Delhi

Rapporteur: Ms. Geetanjali Jayaprakash, CEPT University

Authors/ Presenter	Title of Paper
Uzma Mekrani and Nikhil Ranjan Mandal	Assessing Performance at Multimodal Interchange: A Case Study of New Delhi Railway Station Interchange
Shreya Gupta and Akshaya Paul	Investigating the Trade-off Between Transfers and Transit Time in Public Transport: Case Study of Delhi-NCR
Shantanu Selokar and Arvind Manickam	Urban Public Transport Bus Scheduling Strategies Considering Resource Availability Constraints for Day-to-Day Application
Ria P John and Sanjay Gupta	Last Mile Connectivity for Water Metro, Kochi

Aadil Moopan, Shreepati Jha, Rahul Kumr Jha and Agnivesh Pani	Predicting a Real Time Passenger Occupancy Using Historical Ticketing Data: A case study of Varanasi, India
Session 8: Optimising Urban Traffic Operations **Chairperson: Prof. Gopal R. Patil, IIT, Bombay** **Rapporteur: Mr. Upendra Kumar, CEPT University**	
Authors/ Presenter	**Title of Paper**
Mayank Tanksale, Dr. Chintaman Bari and Dr. Aruna Thube	Study of Lane Changing Operations for Varying Traffic Conditions on a Multi-Lane Highway: A Developing Country Perspective
Ansu V, Anjaneyulu M. V. L. R., Nagendra P, Sahithya V. S. N., Gadha P. S., Sona F and Adithya S. M.	From Farm to Table, Faster and Fresher: A Case Study of Optimising Shared Delivery for Urban Vegetable Distribution in Kozhikode
Shubham Barman and Mayank Dubey	Impact of Posted Speed Limits on Travel Time on Urban Roads
Aarohi Kumar Munshi and Ashish Kumar Patnaik	Quantification of Urban Traffic Congestion: A Case Study of Ranchi City Using K-Means Clustering
Hrishikesh Deshpande, Dr. Chintaman Bari and Dr. Ashish Dhamaniya	Does Age and Gender Affect Time-and-Movement Anticipation of Young Drivers: A Case of Indian Drivers

- All the sessions were well received and attractive. The presentations were judged by a Jury comprising 4 experts under the chairpersonship of Prof. Shalini Sinha, CEPT University and the following papers were adjudged first, second and third. They were given certificate and cash award of Rs. 20,000/- each during the Award Ceremony in the Valedictory session held on 27th October, 2024.

Details of the best paper awardees

First Prize :

Author: Ms. Ann Das
Affiliation: IISc Bangalore
Title: Exploring the Hedonic Dimension of Mental Well-Being in Commute Experiences: Insights from the Satisfaction with Travel Scale in the Indian Context

Second Prize :

Author: Rohit Rathod
Affiliation: SVNIT Surat
Title: Study on Travelers' Preferences for Shifting to Metro Rail in Surat, India.

Third Prize :

Author: Harendra Pratap Singh
Affiliation: IISc Bangalore
Title: Identification of Fatality Hotspots for VRU in Traffic Analysis Zones Using Point Kernel Density Estimation Method

Research Symposium scenario

DAY 1			
Friday 25TH OCTOBER ,2024			
TIME	**LOCATION**	**ACTIVITY**	
09:30 – 11:30	Registration Area near Gate No.7	**Registration**	
11:30 – 12:15	*Venue: Exhibition Hall No.3*	**Inauguration of The Exhibition**	
12:15 – 12:55	Venue: Main Convention Hall	**Inaugural Session**	
12:55 onwards	Venue: Exhibition Hall No.1	**Inaugural Lunch**	
14:30 – 16:00	Venue: *Convention Hall -2* **Harmonising Standards for Optimizing Urban Mobility: Way forward in the Indian context**	**Conclave** **Chairperson**: **Dr. Bimal Patel**, Managing Director, HCP Design, Planning and Management Pvt. Ltd., Ahmedabad **Co-Chairperson: Dr. Mangu Singh,** Former Managing Director, Delhi Metro Rail Corporation Ltd., New Delhi **Speakers/Panellists:** **1. Ms. Ashwini Bhide,** Managing Director, Mumbai Metro Rail Corporation Limited, Mumbai **2. Mr. Mohinder Singh,** Former Dean, The Land Transport Authority (LTA), Singapore. **3. Mr. Ravi Peri, Former** Director, Transport Sector, Asian Development Bank. **4. Mr. Partha Sarathi Reddy Chevuru,** , Programme Director Island, PPP, NITI Aayog, New Delhi.	
16:00 - 16:30	*(Venue: Exhibition Hall No.2)*	**Tea Break**	
Parallel Sessions			
16:30 – 18:00	*(Venue: Seminar Hall No.3)*	**Technical Session -1** **Framework for Planning of integration of modes in Urban Mobility** **(Sponsored by ADB)**	**Chairperson & Moderator: Mr. Sharad Saxena,** Principal Transport Specialist, Asian Development Bank **Speakers/Panellist:** **1. Mr. Shalabh Goel**, Managing Director, National Capital Region Transport Corporation (NCRTC), New Delhi **2. Dr. (Ms.) Julia Sattelberger**, Portfolio Manager , KFW Development Bank, Frankfurt, Germany. **3. Prof. H. M. Shivanand Swamy**, Professor Emeritus Centre of Excellence in Urban Transport (CoE-UT), CRDF, Ahmedabad **4. Ms. Aditi Singh**, Principal Consultant, Mott MacDonald Pvt Ltd., Noida. **5. Mr. Anand Singh Bisht**, Director (Project & Planning), GMRCL.
16:30 – 18:00	*(Venue: Convention Hall No -2)*	**Technical Session 2** **Harmonising Multilateral and Bilateral funding & Make in India**	**Chairperson: Mr. Jaideep,** OSD (UT), Ministry of Housing and Urban Affairs, Govt. of India. **Moderator: Mr. Mukund Kumar Sinha**, Senior Transport Specialist, Asian Development Bank. **Speakers/Panellist:** **1. Dr. Klaus Liebig**, Head of Climate Finance and

		(Sponsored by MoHUA)	Mobility, KfW Development Bank, Frankfurt Germany. 2. **Mr. S. Sivamathan**, Director (Finance) & Chief Financial Officer (CFO), Bangalore Metro Rail Corporation Limited (BMRCL), Bengaluru 3. **Mr. Vineet Abhishek**, Chief Public Relations Officer, Western Railway. 4. **Mr. Kavi Prakash**, COS, Delhi Metro Rail Corporation Ltd., New Delhi. 5. **Mr. Ravi Peri, Former** Director, Transport Sector, Asian Development Bank.
16:30 – 18:00	*(Venue: Seminar Hall -1)*	**Round Table 1** **Vision for Clean Air Cities: Impact of Urban Transport** **(Sponsored by EIB)**	**Chairperson: Ms. Nicola Beer,** Vice President, European Investment Bank. **Moderator: Ms. Shruti Narayan,** Managing Director, Regions and Mayoral Engagement and Regional Director, South and West Asia, C40 Cities, India. **Speakers/Panellist:** 1. **Mr. Kumar Keshav,** Project Director UMCH, Director Business Development (India) & Member of Board of DB RRTS 2. **Mr. Zoltan Donath**, Principal Advisor, Lead Transport Engineer, EIB 3. **Dr. Shalini Sinha**, Dean, Faculty of Planning, Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, CEPT University, Ahmedabad 4. **Mr. Reda Souirgi,** Head of Digital and Mobility Division, Agence Francaise de Development (AFD). 5. **Mr. Maheswara Rao** IAS, Managing Director, Bangalore Metro Rail Corporation Limited. 6. **Dr. Karan Madan**, Associate Professor of Pulmonary, Critical Care, and Sleep Medicine, All India Institute of Medical Sciences (AIIMS), New Delhi 7. **Mr. Amit Kumar,** Senior Vice-President, Mott MacDonald Pvt Ltd., Noida 8. **Dr. Monika Kashkari,** Special Officer, DULT, Bengaluru.
16:30 – 18:00	*(Venue: Seminar Hall -2)*	**Round Table 2** **Innovation Challenge** **(Sponsored by GIZ)**	**Jury Members:** 1. **Mr Yogesh Antil**, Director, MoHUA 2. **Ms Bhawna Bhatnagar,** Co-Founder, We Founder Circle, Mumbai. 3. **Prof. Ashish Verma**, Professor, Indian Institute of Science (IISc), Bangalore 4. **Mr. Anand Chennira ,** Ex Chief Strategy Officer, Sun Mobility, Bengaluru. **Finalists:** • Urban Vind 1.Mr. Pawan Seshadri Venkatesh • Meiro Mobility Private Limited 2.Mr. Sarang Deshpande 3.Mr. Rupesh Bagde 4.Mr. Neeraj Ganji 5.Mr. Durgesh Rajak 6.Mr. Anil Deshpande 7.Mr. Gaurav Chale 8.Mr. Heet Shah • Automicle 9.Mr. Jef Heyse • MCS Cargar Private Limited 10. Mr. Raj Anupam 11. Mr. Kayavan Shah 12. Ms. Pranjal Preet • Transit Intelligence LLP 13. Mr. Ravi Gadepalli 14. Mr. Lakshay Taneja 15. Mr. Aaditya Bhamidipati 16. Ms. Nikita Baliga • Staex 17. Mr. Alexandra Mikityuk

			• Nayan Tech 18. Mr. Jayant Ratti 19. Mr. Umang Gupta
DAY 2			
Saturday 26TH OCTOBER ,2024			
09:30 – 11:00	(Venue: Seminar Hall -3)	**Research Symposium 1** **Integrated Land Use Transport Planning**	**Chairperson: Dr. Rutul Joshi, Senior Associate Professor, CEPT University, Ahmedabad** **Rapporteur: Ms Minal Shetty** **Authors: -** 1. 2. Saurabh Choudhary, Manan Monga, Shubhajit Sadhukhan and Aarya Paigwar 3. Rohit Singh Nitwal, Hemanthini Alli Rani and Ashish Verma 4. Adarsh Yadav and Gitakrishnan Ramadurai 5. Suprava Mishra, Nandini Bhimsaria, Shravan G, Agnivesh Pani, Varun Varghese and Avinash Unnikrishnan
09:30 – 11:00 Hrs	(Venue: Convention Hall -2)	**Research Symposium 2** **Green and Inclusive Mobility**	**Chairperson: Mr. R. Srinivas, Hony. Secretary, IUT and Former Town & Country Planner, TCPO/MoHUA** **Rapporteur: Ms Surya Sugathan** **Authors: -** **1.** Utkarsh Anand and Mohit Dev **2.** Punyabeet Sarangi and M Manoj **3.** Sarath Kt, Trupti Mishra and Rangan Banerjee **4.** Hridya G Muralidharan, Gaurav Tripathi, Agnivesh Pani, Varun Varghese and Avinash Unnikrishnan **5.** Shreepati Jha, Aadil Moopan, Rahul Kumar Jha and Agnivesh Pani
09:30 – 11:00 Hrs	(Venue: Seminar Hall -1)	**Research Symposium 3** **Planning for Safer Streets**	**Chairperson: Prof. Nitika Bhakuni, Senior Associate Professor, CEPT University, Ahmedabad** **Rapporteur: Ms. Geetanjali Jayaprakash** **Authors: -** 1. Rashi Bhat and Sairam Dasari 2. Soja R. Joseph, Sanjay Kumar V. S., Archana S. and Jinumol K. R. 3. Arundhati Hakhu and Rutul Joshi 4. Karthikeyan Baskar, Bhuvanesh Bharath Alwar Mariappan and Yuvaraj Devaraj **5.** Harendra Pratap Singh and Ashish Verma
09:30 – 11:00 Hrs	(Venue: Seminar Hall -2)	**Research Symposium 4** **Technological Advancements in Urban Transport**	**Chairperson: Prof. Gurang Joshi, Professor, SVNIT, Surat** **Rapporteur: Mr Upendra Kumar** **Authors: -** 1. Ajinkya Prashant Pehekar and Shreyas Bharule 2. Lalit Swami, Mokaddes Ali Ahmed and Nitender Yadav 3. Vikram Singh and Amit Agarwal 4. Rohit Rathod, Gaurang Joshi and Shriniwas Arkatkar 5. Divyansh Khare, Dr. Mohit Dev, Dr. Vikas Nimesh and Anmol Jain
11:00 - 11:30	*(Venue: Exhibition Hall No.2)*	**Tea Break**	

11:30 – 13:00	*(Venue: Seminar Hall -3)*	**Technical Session 3** **Leveraging Data for Transport Planning** **Sponsored by WRI**	**Chairperson: Mr. Loknath Behera, Managing Director, Kochi Metro Rail Limited** **Co-Chair: Mr. Hari Somal Raju, Managing Director, Systra.** **Moderator: Mr**. Avinash Dubedi, **Head Integrated Transport, WRI, New Delhi** **Panelists:** 1. Mr. Kishor Nathani, Managing Director & CEO, UMTC, New Delhi 2. Mr.Shrinivas Rao Arragunta, Assistant General Manager, BEST Undertaking, Mumbai 3. Ms. Swati Khanna, Project Officer, KFW Development Bank, New Delhi 4. Mr. Abhijit Sengupta, Country Director, India, Asia Pacific Smart Card Association (APSCA) India. 5. Mr. Vivekanand Kotikalapudi, Transport Infrastructure Advisor, GIZ. 6. Mr. Saurabh Kasturia, Founder & CEO, Street Surge Technologies, Gurugram 7. Mr. Yury Gorlov, Deputy Head of International Business Team, TVEMA 8. Mr. Pawan Muluktla, Executive Director, Integrated Transport, Clean Air and Hydrogen 9. Ms. Priyadarshi Singh, Consultant- Integrated Transport, WRI India
11:30 – 13:00	*(Venue: Convention Hall -2,)*	**Technical Session 4** **E-Bus ecosystem in Urban Space** *(Venue: Convention Hall -2,)* **Sponsored by ADB**	**Chairperson: Dr. Surendra kumar Bagde,** Additional Secretary, Ministry of Housing & Urban Affairs (MoHUA), New Delhi **Moderator: Mr. Sharad Saxena**, Principal Transport Specialist, Asian Development Bank (ADB), New Delhi **Panelists:** 1. **Mr. Kanzo Nakai,** Director, Transport Sector Group, ADB 2. **Ms. Japnit Kaur**, Senior Investment Specialist, Private Sector Operations Department, Asian Development Bank (ADB), Manila 3. **Mr. Nishant Arya**, Vice Chairman & MD, JBM, Gurgaon Auto- Private sector expectations on standardization for different use-cases (public, staff, school e-buses. 4. **Mr. Ulrich Thomas**, Technical Specialist, KfW, Frankfurt, Germany 5. **Mr. Chintan Daftardar**, Senior Program Manager - Cities and Transport, WRI India, New Delhi. 6. **Prof. (Dr). P. K. Sarkar**, Former Professor School of Planning and Architecture, New Delhi and Vice President, IUT. 7. **Mr. Prashanth Kumar Palani**, Head-Automotive Homologation, Haritha Techlogix, Coimbatore.
11:30 – 13:00	*(Venue: Seminar Hall -1))*	**Round Table 3** **Streamlining Urban Freight** **Sponsored by TERI**	**Chairperson: Dr. Vikas Kumar**, Managing Director, Delhi Metro Rail Corporation Ltd., New Delhi. **Co-Chairperson: Mr. E. Srinivas,** Joint Secretary, The Department for Promotion of Industry and Internal Trade (DPIIT), New Delhi. **Moderator: Mr. Sharif Qamar,** Fellow & Associate Director, Transport and Urban Governance Division, TERI **Panelists:** 1. Mr. Namit Jain, Founder and CEO, Zen Mobility, New Delhi 2. Dr. Mayank Dubey, Assistant Professor

			(Transport Planning Department) and Coordinator (Centre of Excellence in City Logistics Management), SPA-Bhopal 3. Ms. Priti Shukla, Program Manager-Electric Mobility, Shakti Sustainable Energy Foundation. 4. Mr. Nitin Nair, Senior Vice-President, ONDC 5. Mr. Uday Narang, Founder, Omega Seiki Mobility. 6. Mr. Deepak Baindur, Head, Green Freight Project, GIZ, New Delhi. 7. Mr. Abhijit Lokre, Founder Partner, The Urban Lab. 8. Ms. Pritha Ghosh Chatterjee, Senior Principal Transport Planner, Systra 9. Mr. Amegh Gopinath, Lead - Electric Mobility & NDC-TIA, GIZ India. 10. Dr. Gaurav Singh, Chief Technology Officer, Adani Group
11:30 – 13:00	*(Venue: Seminar Hall -2)*	**Round Table 4** **<u>Active Mobility for all: Redefining India's Urban Commute.</u>** **<u>Sponsored by GIZ.</u>**	**Chairperson: Mr. Shalabh Goel,** Managing Director, NCRTC. **Co-Chair: Mr. Jitendra Tyagi**, MD, Uttarakhand Metro Rail Corporation Limited. **Moderator: Zohra Mutabanna**, Team Lead, NMT expert, SUM-ACA. **Panelists:** 1. **Ms. Aswathy Dilip**, Managing Director, ITDP India 2. **Prof. Ashish Verma**, Professor, Transportation Systems Engg. (TSE), Convenor, IISc Sustainable Transportation Lab. (IST Lab.), Dept. of Civil Engg., Indian Institute of Science (IISc), Bangalore 3. **Ms. Sujata Hingorani**, Co-Founder and Director, Oasis 4. **Ms. Rana Amani**, Mobility Specialist, GIZ 5. **Mr. Pawan Kumar**, Associate TCP, TCPO, New Delhi 6. **Ms. Thysz Estrada**, Marketing Consultant, Cycling activist. 7. **Mr. Navdeep Asija**, Director, Punjab Road Safety and Traffic Research Centre. 8. **Ms. Shalini Agarwal**, Municipal Commissioner, Surat Municipal Corporation, Surat. 9. **Mr. Sourav Dhar**, Programme Lead, CEEW
13:00 – 14:30	**Lunch** *(Venue: Exhibition Hall No.1)*		
14:30 – 16:00	*(Venue: Convention Hall -2)*	**Technical Session 5** **<u>Benchmarking cost of metro systems</u>** **<u>Sponsored by MoHUA</u>**	**Chairperson & Moderator: Mr. Om Hari Pandey,** Director/Electrical, Delhi Metro Rail Corporation Ltd. **Co-Chair**: **Mr. Sushil Kumar**, Managing Director, Uttar Pradesh Metro Rail Corporation Limited, Lucknow **Panelists:** 1. **Mr. Jaideep,** OSD (UT), Ministry of Housing and Urban Affairs, Govt. of India. 2. **Mr. Shalabh Goel,** Managing Director**,** National Capital Region Transport Corporation (NCRTC) 3. **Mr. Rajiv Dhankher**, Director, Projects & Planning, Delhi Metro Rail Corporation Ltd., New Delhi. 4. **Mr. Sandeep Fuller**, Senior Vice-President, SYSTRA 5. **Mr. Rajeev Tyagi,** Director (Project), Maharashtra Metro Rail Corporation Ltd., Nagpur. 6. **Mr. Praveen Goyal**, CEO of DB RRTS. 7. **Mr. Alok Kapoor,** Chief Executive Officer, Pune IT City Metro Rail Limited 8. **Mr. Philippe Leguay**, International Director,

			Keolis International Operation Transport Company. 9. **Mr. N.M. Dhoke,** Director (Rolling Stock, Signalling & Electrical), Bangalore Metro Rail Corporation Limited (BMRCL).
14:30 – 16:00	*(Venue: Seminar Hall -1)*	**Round Table 5** **Templates of Urban Transport Solutions for Small and Medium Cities in India** **Sponsored by CEEW**	**Chairperson: Dr. Surendrakumar Bagde, IAS Additional Secretary, Ministry of Housing & Urban Affairs. (MoHUA), Govt. of India.** **Moderator: Dr. Himani Jain**, Senior Programme Lead, CEEW **Panelists:** 1. **Prof. Shivanand Swamy,** Professor Emeritus, Center of Excellence in Urban Transport (CoE-UT), Ahmedabad 2. **Mr. Dhanuraj**, Founder-Chairman, Centre for Public Policy Research (CPPR) 3. **Mr. Prasanna Patwardhan**, President, Bus & Car Operators Confederation of India, BOCI.) 4. **Mr. Harpal S. Dave**, Additional chief town planner, Ahmedabad Urban Development Authority, Govt of Gujarat. 5. **Prof. Gopal R. Patil**, Professor, IIT Bombay 6. **Mr. Navdeep Asija**, Director, Punjab Road Safety and Traffic Research Centre, Govt of Punjab 7. Smt. **Anudeepika Jain**, Public Policy Lead - India and South Asia, Uber 8. **Mr. Chander Sekhar Khare**, MD, Haryana Mass Rapid Transport Corporation limited. 9. **Mr. Krishna Khanna**, Programme Associate Sustainable Mobility, CEEW 10. **Mr. Sourav Dhar,** Programme Lead, CEEW 11. **Dr. Nikita Bhakuni,** Sr. Associate Professor, Faculty of Planning, CEPT University 12. **Shri. Sooraj Nair**, Head of Operations, Tukxi 13. **Dr. Monika Kashkari**, Special Officer, DULT, Bengaluru. 14. **Dr. Om Prakash**, IAS, Municipal Corporation, Junagadh 15. **Pramoj Sankar**, MD, KSRTC 16. **Shri. Soumitri Das**, Team Lead, USAID
14:30 – 16:00 Hrs	*(Venue: Seminar Hall -2)*	**Round Table 6** **Market Opportunities and Innovation Trends in the Metro Systems in India: A Future Outlook** **Sponsored by Embassy of Spain.**	**Chairperson: Ms. Ashwini Bhide,** Managing Director, Mumbai Metro Rail Corporation Limited, Mumbai **Moderator: Mr. Sharad Saxena**, Principal Transport Specialist, Asian Development Bank (ADB), New Delhi **Panelists:** 1.**Mr. Shravan Hardikar**, Managing Director, Maharashtra Metro Rail Corporation Limited. 2.**Mr. Gonzalo Alfonso Navarro Hernández** Counsellor, Economic y Commercial office, Embassy of Spain, Nueva Delhi 3.**Mr.Enrique Huertas Garcia**, CEO, Colin Buchanan 4.**Mr. Sandip Ray**, Country Manager, Ardanuy India. **5.Mr. Vinay Kumar,** Commercial Director, CAF India. **6.Mr. Arshad Ali**, Managing Director, Cemosa. **7.Mr. Sukumar Kolli,** Managing Director, Typsa India. **8.Mr. Tarun Paliwal,** Managing Director, Zitron India. **9. Mr.Guillermo Burgos Barroso,** Area Manager South Asia, LDA Audiotec. **10. Prof. Uttam Kumar Roy,** IIT Roorkee. **11. Mr. Ravi Ramachandran,** Managing Director, Motorola Solutions India Pvt. Ltd.
16:00 – 16:30	*(Venue: Exhibition*	**Tea Break**	

	Hall No.2)		
16:30 – 18:00	*(Venue: Convention Hall -2)*	**Technical Session 6** **Leveraging DPI framework for E-Mobility**	**Chairperson: Mr. Mohinder Singh, Ex-Director of Planning**, The Land Transport Authority (LTA), Singapore. **Moderator: Dr. Pawan Mulukutla,** Executive Director, Integrated Transport, Clean Air and Hydrogen, WRI India. Bengaluru. **Panelists:** 1. **Prof. Gitakrishnan Ramadurai**, Professor, IIT Madras. 2. **Dr.Rohini Srivathsa,** National Technology Officer, Microsoft India and South Asia. 3. **Mr. Yogesh Shetye,** President - Business Development, Paycraft Solutions Pvt. Ltd. 4. **Mr. Avinash Dubedi, Head - Public Transport, WRI India** 5. **Mr. Chintan Daftardar**, Senior Program Manager - Cities and Transport, WRI India, New Delhi. 6. **Prof. Shivanand Swamy,** Professor Emeritus, Center of Excellence in Urban Transport (CoE-UT), Ahmedabad 7. **Mr. Prasanna Patwardhan**, President, Bus & Car Operators Confederation of India, BOCI.) 8. **Dr. Himani Jain**, Senior Programme Lead, CEEW
16:30 – 18:00	*(Venue: Seminar Hall -1)*	**Round Table 7** **Building 15-Minute Cities: A Pathway to Sustainable Urban Mobility** **Sponsored by ITDP & IBI**	**Chairperson: Mr. Mukund Kumar Sinha**, Senior Transport Specialist, Asian Development Bank. **Moderator: Ms. Aswathy Dilip**, Managing Director, ITDP India **Co-Moderator: Mr. Sandeep Venkataramu**, Senior Associate and Studio Lead - Urban Design, Arcadis IBI Group. **Panelists:** 1. **Mr. Shekhar Singh**, IAS, Commissioner, Pimpri Chinchwad Municipal Corporation, Government of Maharashtra. 2. **Ms. Shalini Agrawal**, IAS, Commissioner, Surat Municipal Corporation, Government of Gujarat**.** 3. **Mr. Manjunath Sekhar**, Head, Sustainable Urban Mobility-Air Quality, Climate Action and Accessibility (SUM-ACA), GIZ 4. Ms. **Zohra Mutabanna**, Team Lead, GFA Consulting Group 5. **Dr. Shalini Sinha**, Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, Ahmedabad 6. **Ms. Sarika Chakravarty**, Team Lead, Urban Shift 7. **Mr. Ryan Christopher Sequeira**, Senior Associate and Studio Lead - Land Economics & TOD, Arcadis IBI Group 8. **Mr. Anuj Malhotra**, General Manager, Planning & Urban Development, Srinagar Smart City Limited. 9. **Ms. Priya Singh,** Co-Founder and Director, Chalo Mobility
16:30 – 18:00	*(Venue: Seminar Hall -3)*	**"Envisioning an ONDC-Enabled Pan-India Mobility Network: Scalable Multi-Modal Solutions with Streamlined Integration and Opportunities for Innovation"** **Sponsored by**	**Speaker/Panellists:** 1. **Ms. Usha Padhee,** Pr Secretary, CRUT 2. **Mr. Ravish,** Founder, Sequel String 3. **Mr. Alby John,** MD , MTC 4. **Mr. Sanjay Kumar,** Director Systems, Kochi Metro Rail Limited. 5. **Shan M.S,** Chief Growth Officer, Juspay Technologies. 6. **Mr.Pravesh Biyani,** Professor , IIT Delhi 7. **Mr. Nitin Nair,** Senior Vice President , ONDC

		ONDC	
DAY 3			
Sunday 27TH OCTOBER ,2024			
09:30-11:00	*(Venue: Convention Hall -2)*	**Research Symposium 5** **Behavioral Insights into Urban Mobility Planning**	**Chairperson: Prof. PK Sarkar, Former Professor and HOD, SPA, New Delhi** **Rapporteur: Ms. Ruchi Singhal** **Authors:-** 1. Ayushi Shah, Grishma Kharole and Gaurang Joshi 2. Ann Das and Ashish Verma 3. Rohit Rathod and Gaurang Joshi 4. Ayush Kaul, Deep Ghadia, Onkar Shinde, Radha Shinde, Tanmayee Deshpande and Dr. Chintaman Bari 5. Rohit Rathod, Raj Prajapati and Gaurang Joshi
09:30-11:00	*(Venue: Seminar Hall -3*	**Research Symposium 6** **Sustainable and Resilient Urban Transport System**	**Chairperson: Prof. Nitika Bhakuni, Senior Associate Professor, CEPT University, Ahmedabad** **Authors:-** 1. Radhika G and Bandana Jha 2. Anand B and Sairam Dasari 3. Shaheem S, Nisha Radhakrishnan and Samson Mathew 4. Manisha Sharma and Nitika Bhakuni 5. Piyush Lalwani, Sai Chand, Abdul Hannan Azad, Vinayak Dixit and Bhimaraya Metri
09:30-11:00	*(Venue: Seminar Hall -1)*	**Research Symposium 7** **Public Transport Planning and Operations**	**Chairperson: Prof. Mukti Advani, Senior Principal Scientist, CRRI and Coordinator, AcSIR-CRRI, Delhi** **Rapporteur: Ms Geetanjali Jayaprakash** **Authors:-** 1. Uzma Mekrani and Nikhil Ranjan Mandal 2. Shreya Gupta and Akshaya Paul 3. Shantanu Selokar and Arvind Manickam 4. Pooja Bagmar and Shraddha B Ria P John and Sanjay Gupta
09:30-11:00	*(Venue: Seminar Hall -2)*	**Research Symposium 8** **Optimising Urban Traffic Operations**	**Chairperson: Prof. Gopal R. Patil, Vice President, IUT and Professor, Department of Civil Engineering, IIT, Bombay** **Rapporteur: Mr Upendra Kumar** **Authors:-** 1. Mayank Tanksale, Dr. Chintaman Bari and Dr. Aruna Thube 2. Ansu V, Anjaneyulu M. V. L. R., Nagendra P, Sahithya V. S. N., Gadha P. S., Sona F and Adithya S. M. 3. Shubham Barman and Mayank Dubey 4. Aarohi Kumar Munshi and Ashish Kumar Patnaik 5. Hrishikesh Deshpande, Dr. Chintaman Bari and Dr. Ashish Dhamaniya
11:00 - 11:30 Hrs	**Tea Break** *(Venue: Exhibition Hall No.2)*		

11:30 – 13:00	*(Venue: Convention Hall -2)*	**Technical Session 7** **Innovative approaches in Transport Financing** **Sponsored by MoHUA**	**Chairperson: Mr. Maheswara Rao** IAS, Managing Director, Bangalore Metro Rail Corporation Limited. **Moderator: Mr. Ajit Sharma**, Director (Finance), Delhi Metro Rail Corporation Ltd., New Delhi. **Panelists:** 1. **Mr. K.V.B. Reddy**, Managing Director & Chief Executive Officer, L&T Metro Rail (Hyderabad) Limited, Hyderabad. 2. **Mr. Uday Narain,** Asst. Vice President, Pune Metro. 3. **Mr. Mahendra Kumar**, Director (Electrical & Rolling) Stock, DMRC. 4. **Mr. Ravi Peri, Former** Director, Transport Sector, Asian Development Bank. 5. **Shri Vijay Singhal**, IAS, Vice Chairman and Managing Director, Navi Mumbai Metro, CIDCO.
11:30 – 13:00	*(Venue: Seminar Hall -3)*	**Technical Session 8** **Gender Issues in Urban Mobility** **Sponsored by GIZ**	**Chairperson: Ms.Usha Padhee** , IAS , HUDD , Odisha **Co-Chairperson**: **Ms.Sagarika Patnaik,** IRPS **Co-Chairperson**: **Mr.Christian Kapfensteiner** , Director, Sustainable Urban Development and SUID Cluster Coordinator , GIZ India. **Moderator: Ms. Krishna Desai**, Mobility Specialist, SUM-ACA, GIZ, New Delhi **Panelists:**. 1. Ms.Thysz Estrada, Transgender activist, Philippines 2. Dr. Noonsavath Thirumala Naik, Managing Director, Capital Region Urban Transport, Bhubaneswar 3. Ms. Swati Khanna, Project Officer, KFW Development Bank, New Delhi 4. Ms. Rajani Tewari, Chief People Officer, Green Cell Mobility .
11:30 – 13:00	*(Venue: Seminar Hall -1)*	**Round Table 8** **Standardising Mobility Systems in Core Areas of Indian Cities** **Sponsored by CRDF & The Urban Catalyst**	**Chairperson: Mr. Ashwini Kumar, IAS, Principal Secretary, Urban Development and Urban Housing Department (UD & UHD), Gujarat.** **Moderator: Prof. H. M. Shivanand Swamy, Professor Emeritus** **Co-Moderator: Dr. Shalini Sinha (Moderator), Centre Head, Centre of Excellence in Urban Transport (CoE-UT), CRDF, Ahmedabad** **Panelists:** 1. **Ms. Anumita Roy Chowdhury**, Executive Director, Research & Advocacy, Centre for Science and Environment (CSE), New Delhi 2. **Mr. Vivek Ogra**, Partner, Transport, Enrst and Young LLP (EY), Ahmedabad 3. **Ms. Kalpana Viswanath**, Co-Founder & CEO, Safetipin, Gurugram 4. **Ms. Sonal Shah**, Founder, The Urban Catalyst

			(TUC) 5. **Mr. Sudhir Badami**, Independent Consultant, Indian Institute of Technology. Mumbai. 6. **Mr. Amegh Gopinath**, Component Team Leader at NDC-TIA India, Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH 7. **Mr.Safin Hasan** (IPS), DCP Traffic Police (East Zone) Ahmedabad 8. **Mr. Vishal Khanama**, i/c Deputy Municipal Commissioner, Ahmedabad Municipal Corporation and General Manager of Bus Rapid Transit System (BRTS), Ahmedabad
11:30 – 13:00 Hrs	*(Venue: Seminar Hall -2)*	**Round Table 9** **Role of PPP in deployment of Standardized Digital Public Transport Infrastructure and Services** **Sponsored by Chalo Mobility**	**Chairperson: Dr. Surendrakumar Bagde,** Additional Secretary, Ministry of Housing & Urban Affairs, New Delhi **Co-Chair: Ms. Shilpa Shinde**, Managing Director & Special Commissioner, Delhi Transport Corporation, Government of National Capital Territory of Delhi, New Delhi. **Moderator: Ms. Priya Singh,** Co-Founder and Director, Chalo Mobility **Panelists:** 1. **Dr. Owais Ahmad Rana**, Chief Executive Officer, Srinagar Smart City Ltd. 2. **Mr. Mohit Dubey** - CEO, Chalo Mobility 3. **Mr. Pawan Mulukutla**, Executive Director, WRI, Bengaluru 4. **Shri Shan MS**, COO, Namma Yatri. 5. **Mr. Sanjay Biswal**, General Manager, Ops, CRUT 6. **Mr Abhijit Sengupta**, Country Director, India, Asia Pacific Smart Card Association (APSCA) India, Noida.
13:00 – 14:15 Hrs	**Lunch** *(Venue: Exhibition Hall No.1)*		
14:15 – 15:15 Hrs	*(Venue: Convention Hall -2)*	**Plenary Session – Mayoral Session** **City's Perspective of Urban Transport Challenges**	**Chairperson: Mr. Srinivas Katikithala**, Secretary (HUA), Ministry of Housing & Urban Affairs, New Delhi **Moderator: Dr. I. P. Gautam IAS (Retd)**, Former Member, Lokpal of India, Gandhinagar. **Speakers/Panellists:** 1. **Ms. Sulochana Das**, Mayor Bhubaneswar, Municipal Corporation, Odisha 2. **Mr. M. K. Varghese**, Mayor of Thrissur, Thrissur Corporation, Kerala 3. **Ms. Pratibhaben Rakeshkumar Jain**, Mayor Ahmedabad, Gujarat
15:15 - 15:30	*(Venue: Exhibition Hall No.2)*	**Tea Break**	
15:30 – 17:35	*(Venue: Convention Hall -2)*	**Valedictory Session**	
17:35onwards	*(Venue: Exhibition Hall No.2)*	**High Tea**	

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18	Exhibitor	Pandrol Rahee Technologies Pvt. Ltd.
19	Exhibitor	Neptune India Ltd.
20	Exhibitor	Bharat Electronics Limited
21	Exhibitor	National High Speed Rail Corporation Limited (NHSRCL)
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25	Exhibitor	Rail Vikas Nigam Limited
26	Exhibitor	SBEE Cables India Limited
27	Exhibitor	Hunter Douglas India Pvt. Ltd.
28	Exhibitor	CEC – ITD Cem – TPL Joint Venture
29	Exhibitor	J C Industries
30	Exhibitor	ErvoCom International AG
31	Exhibitor	Universal MEP Projects & Engineering Services Limited (UMPESL)
32	Exhibitor	Consulting Engineers Group Limited
33	Exhibitor	Asis Elektronik ve Bilişim Sistemleri A.Ş.
34	Exhibitor	Sequoia Safety Products Private Limited
35	Exhibitor	Kalpataru Projects International Limited
36	Exhibitor	Atlantic Tradeengineers LLP
37	Exhibitor	Voltas Ltd.
38	Exhibitor	Delta Electronics India Private Limited
39	Exhibitor	DAMM Cellular Systems India Pvt. Ltd.
40	Exhibitor	Bahwan Cyber Tek Private Limited
41	Exhibitor	Linxon India Private Limited
42	Exhibitor	Panasonic
43	Exhibitor	Gulermak India Private Limited
44	Exhibitor	Terafence Private Limited
45	Exhibitor	Sécheron Hasler (India) Private Limited
46	Exhibitor	Railtech Alu Singen
47	Exhibitor	Ecotec Engineers & consultants
48	Exhibitor	Afcons Infrastructure Limited
49	Exhibitor	Johnson Lifts Private Limited
50	Exhibitor	Highness Microelectronics Private Limited

51	Exhibitor	Aces India Private Limited
52	Exhibitor	Centre for Green Mobility
53	Exhibitor	Arthur Flury India Private Limited
54	Exhibitor	Birla Corporation Limited
55	Exhibitor	Abhijit Realtors & Infraventures Pvt Ltd.
56	Exhibitor	Omega Elevators
57	Exhibitor	Bosch Limited
58	Exhibitor	Frauscher Sensor Technology India Private Limited
59	Exhibitor	TK Elevator India Private Limited
60	Exhibitor	Vossloh Fastening Systems India Pvt Ltd.
61	Exhibitor	Daulatram Engineering Services Pvt Ltd.

62	Exhibitor - Bus Display	Tata Motors Limited

S. No.	Category	Name of Organization
1	Knowledge Partner	GIZ
2	Knowledge Partner	Asian Development Bank
3	Knowledge Partner	European Investment Bank
4	Knowledge Partner	Council on Energy, Environment and Water (CEEW)
5	Knowledge Partner	WRI India
6	Knowledge Partner	The Urban Catalyst
7	Knowledge Partner	TERI
8	Knowledge Partner	New Development Bank
9	Knowledge Partner	CEPT, Ahmedabad

S.No.	Name of Organization
1	Metro Rail News
2	Urban Transport News
3	Metro Rail Today
4	Urbana Update
5	Rail Analysis

AI	-	Artificial Intelligence
ADB	-	Asian Development Bank
AFD	-	Agence Francaise de Developpement (Frence Development Agency
AFCS	-	Automatic Fare Collection System
AMIL	-	Artificial Intelligence Mae up language
AMRUT	-	Atal Mission for Rejuvenation and Urban Transformation
ANEW	-	Association for Non-Traditional Employment for Women
APSCA	-	Asia Pacific Smart Card Association
BEE Rating	-	Bureau of Energy Efficiency Rating
BTKM	-	Billion Tonne Kilometres
BMRCL	-	Bengaluru Metro Rail Corporation Ltd
BMS	-	Battery Management System
BRTS	-	Bus Rapid Transit System
CABH	-	Cleaner and Better Health
CCTV	-	Closed Circuit Television
CEO	-	Chief Executive Officer
CEMS	-	City Electric Mobility Strategy
CEPT	-	Centre for Environment Planning & Technology
CEEW	-	Council on Energy, Environment and Water
CNG	-	Compressed Natural Gas
COP	-	Conference of the Parties
CPPR	-	Centre for Public Policy Research
CRUT Bhubaneshwar	-	Capital Region Urban Transport
DC	-	Direct Current
DDA	-	Delhi Development Authority
DMRC	-	Delhi Metro Rail Corporation
DPG	-	Digital Public Goods
DPI	-	Digital Public Infrastructure
DTC	-	Delhi Transport Corporation
D2C	-	Direct to Consumer
ETM	-	Enterprise Technology Management
E.V.	-	Electric Vehicles

ECBC Compliant	-	Energy Conservation Building Code
FAR	-	Floor Area Ration
FAME Scheme	-	Faster Adoption and Manufacturing (Hybrid) and Electric Vehicle Scheme
GCC	-	Gross Cost Contract
GDP	-	Gross Domestic Product
GHG	-	Green House Gas
GIZ	-	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation)
HV	-	Heavy Vehicle
ICCT	-	International Council on Clean Transportation
ICE	-	Internal Combustion Engine
IISc	-	Indian Institute of Science
IIT	-	Indian Institutes of Technology
IOT	-	Internet of Thing
IPT	-	Intermediate Public Transport
ISBT	-	Inter State Bus Terminus
ITS	-	Intelligent Transport System
ITM	-	Information Technology Management
ITDP	-	Institute for Transportation and Development Policy
ITMS	-	Intelligent Transport Management System
JICA	-	Japan International Cooperation Agency
KfW	-	Kreditanstalt für Wiederaufbau (German Promotional Bank)
KMRCL	-	Kolkata Metro Rail Corporation Limited
KSRTC	-	Karnataka State Road Transport Corporation
LED	-	Light-emitting diode
LEZ	-	Low Emission Zone
LIFE Mission	-	Lifestyle for Environment
MMI	-	Multi-Modal Integration
MMR	-	Mumbai Metropolitan Region
MMRCL	-	Mumbai Metro Rail Corporation Ltd.
MMRDA	-	Mumbai Metropolitan Region Development Authority
MNRE	-	Ministry of New and Renewable Energy
MRT	-	Metro Rail Transit
NCMC	-	National Common Mobility Card

NEBP	-	National Electric Bus Programme
NCRTC	-	National Capital Region Transport Corporation
Niti Aayog	-	National Institution for Transforming India
NMT	-	Non-Motorised Transport
NPCI	-	National Payment Corporation of India
NUTP	-	National Urban Transport Policy
OCC	-	Operation Control Centre
OEM	-	Original Equipment Manufacturer
ONDC	-	Open Network for Digital Commerce
OSRTC	-	Orissa State Road Transport Corporation
O&M	-	Operation and Maintenance
PBS	-	Public Bicycle Sharing
PCS	-	Preventive Control System
PHPDT	-	Peak Hour Peak Direction Traffic
PPP	-	Public Private Partnership
PSD	-	Passenger Safety Device
PwC	-	PricewaterhouseCoopers
R & D	-	Research and Development
ROI	-	Return on Investment
ROW	-	Right of Way
RRTS	-	Regional Rapid Transit System
STEP	-	Support to Training and Employment Programme
STUs	-	State Transport Undertaking
SPA	-	School of Planning and Architecture
SPV	-	Special Purpose Vehicle
TERI	-	The Energy and Resources Institute
TOD	-	Transit Oriented Development
UMTA	-	Unified Metropolitan Transport Authority
UPSRTC	-	Uttar Pradesh State Road Transport Corporation
USAID	-	United States Agency For International Development
VCF	-	Value Capture Financing
VGF	-	Viability Gap Funding
WHO	-	World Health Organization
WRI	-	World Resources Institute

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