Proceedings of UMI 2013

Institute of Urban Transport (India)

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www.urbanmobilityindia.in

Preface

The National Urban Transport Policy of the Government of India, 2006 (NUTP), lays strong emphasis on building capabilities at the state and city level to address problems associated with urban transport and lays down the guidelines for developing sustainable urban transport systems as well. As part of NUTP enunciations, the Ministry of Urban Development, Government of India has taken two important steps to encourage cities to reform their city transport:

I. Organizing an Annual Conference-cum-Exhibition on 'Urban Mobility' at New Delhi every year under the brand Urban Mobility India (UMI) for dissemination of information and to facilitate exchange of ideas;
II. According recognition to good urban transport initiatives taken by cities / other agencies by giving awards to selected good practice projects.

The Ministry of Urban Development (MOUD), Government of India; held the annual Conference cum Exhibition on the theme "Transforming Cities With Transportation" from 3rd to 6th of December 2013 at New Delhi. The event was organized at the Manekshaw Centre, Dhaula Kuan, New Delhi, by the Institute of Urban Transport (India) New Delhi. It was attended by approximately 1100 participants, comprising urban transport experts, practitioners, resource persons, researchers, scholars and senior government officials from India and from 15 foreign countries including the United States of America, Australia, Singapore, France, Germany, Netherland, Taiwan, Japan, and Nigeria. Representatives from 26 state governments, several urban local bodies, parastatals as well as academia, students, non-governmental organizations (NGOs), and private sector participated in the conference. About 15% of participants were foreign nationals, 18% students. 17% from private sector and 50% represented government organizations.

As part of the Conference, A Research Symposium was also organized on 4th and 5thof December at which selected research work in the field of urban transport was disseminated through 33 presentations. The Research Symposium was coordinated by the Department of Transport Planning, School of Planning and Architecture, New Delhi.
The Conference and Expo was inaugurated on 3rdof December by Shri Kamal Nath, Hon'ble Minister for Urban Development and Parliament Affairs, Government of India. Key note address was delivered by Mr. Enrique Penalosa, President ITDP and Ex-Mayor

Bogota. Dr. Sudhir Krishna, Secretary (UD) addressed the gathering at inaugural session.

After 4 day of knowledge sharing and exchange of ideas through 10 Technical Sessions, 13 Round Table Discussions and 3 Panel Discussions, the conference concluded on 6thof December 2013. The valedictory function was graced by Dr. Sudhir Krishna, Secretary (UD), Government of India. In UMI-2013, two new events were added for the first time:

I) Everyday a multi-colour Newsletter containing highlights of the previous day deliberations and pictorial view of participations was published and circulated in the conference

2) In all the Technical Sessions, Round Table Discussions and Panel Discussions3-4 standard questions related to the theme / sub-theme of each session were posed to the audience at the end of each session to seek their opinion. Answers were received through voting meters and results were presented on the screen immediately.

Both the exercises were appreciated by the participants. The Conference and Expo was well received by the participants and sponsors. Proceedings and outcome of the conference including results of the audience poll are presented in this document.

Institute of Urban Transport (India)
March, 2014

Contents

A. Important Outcomes

UMI-2013

Transforming Cities with Transportation

(Outcomes and Proposed Action)

S. No	Outcomes	Action needed
1.	Inclusive Transport Policies should be integrated with urban land use policies.	Revised URDPFI Guidelines
2.	Fragmented responsibilities in urban transport planning need to be integrated through a lead institution like UMTA devolving major functions.	Advisory issued, IRMA to follow up
3.	Urban Mobility Index should be devised on a set of maturity and performance parameters to identify the urban transport sustainability in various large cities.	Study
4.	There should be one Coordinating Agency for implementation of TOD projects in a city. TOD Influence Zone should be marked on Master Plan and Zonal Plan.	Advisory
5.	Incremental approach should be followed for meeting the parking needs. Parking Regulations and policies should have a limit on street parking time, area resident should have priority for street parking, there should be a limit on street parking of large vehicles, mandatory off street parking proof to purchase vehicle etc.	Study
6.	IPT should be properly integrated with mass public transport as it serves first and last mile connectivity. IPT modes at local level should be recognized to facilitate registration and licensing.	Advisory
7.	There is a need for integration of Bus network at five levels namely – Physical, operational, fare, institutional and image of the system for success of bus services.	Study
8.	Comprehensive Mobility Plan should give emphasis on public transport and NMT and be an integral part of Master Planning Process so as to provide statutory backing.	Issue revised Toolkit
9.	Service Level Benchmarks for hill towns	Review Service Level

	should be flexible in view of geographical conditions, travel habits, building requirements. Benchmarks should be integrated with planning and budgeting.	Benchmarks
10.	Standardised Bus Maintenance programme should be worked out and fuel efficiency optimization need to be incorporated into the process.	Study
11.	Relocation of whole sale markets and shifting of truck terminals on the periphery of the city should be taken up on priority.	Advisory
12.	Provisions for universal accessibility, road safety, regional and sub-regional transport, ITS, models for IPT, environmental issues, freight traffic etc. should be clearly made in the revised NUTP.	Done in the revised NUTP-2014
13.	Security in Public Transport should be considered in four distinct phase viz. prevention, preparedness, response and recovery.	Advisory

B. Inaugural Session

The UMI 2013 started on 3rd December with the inaugural session. While welcoming participants Mr. M.K.Sinha Officer on Special Duty & Ex Officio Joint Secretary, Ministry of Urban Development Govt. of India, gave a background of the annual Urban Mobility India Conference organised by IUT and supported by MoUD and its purpose in strengthening the government's capacity building efforts in the country. He highlighted the theme of the conference and introduced the sub-themes which were to be deliberated in 10 Technical Sessions and 13 Round Table discussions during the 4 day conference. (Conference Programme at Annexure I)

In his address, Dr. Sudhir Krishna Secretary, (Urban Development) Govt. of India stressed that for economic development, urban transport is a critical area. He said that the need is to improve accessibility and mobility in the city and the city planning should stress on transit oriented development (TOD). Metro rail is a capital intensive mode but it increases the land value along the transit corridor which needs to be captured. Jaipur and Pune have shown good results in this regard by making the public transport a money spinner. He also said that capacity building has to be taken up in a big way to make the cities green, clean, livable and sustainable. The innovative solutions in local transport like Rahagiri in Gurgaon, Alwar Wahini in Alwar and Atal Indore Bus Service in Indore are some of the good examples to emulate. Multimodal transport system has to be integrated at institutional, operational, infrastructure and information levels. The knowledge and experiences gained by various agencies in the field of urban transport across the country should be shared for development of sustainable urban transport system.

Mr. Enrique Penalosa, President ITDP and Ex-Mayor Bogota (Colombia) in his key note address highlighted the importance of BRTS and advocated for exclusive lanes for buses in the city. Quoting the example of Landon, Guangzu, Rio, Ohio, Paris etc. he mentioned that BRTS can serve the city well with higher frequency. New roads constructed in urban areas should have provision for BRTS.

Inaugurating the 6th Urban Mobility India Conference and Expo, Shri Kamal Nath Hon'ble Minister for Urban Development and Parliamentary Affairs, Govt. of India said that he was delighted to know about the participation of so many states, cities, parastatals, professionals, experts and students in the field of urban transport from India and abroad as well as multilateral organization in the event. This annual international event has created an awareness and impact in improving the urban

transportation system across the country. He mentioned that share of urban sector in GDP will increase from 60% to 70% in the next two decades and with rapid urbanization, urban transport problems will also become complex. Priority should be given for public transport which should be environmentally sustainable inclusive and techno-economically viable. National Urban Transport Policy (2006) launched by the Ministry of Urban Development focused on movement of people than vehicles. It stressed on equitable allocation of road space, greater use of public transport and non-motorised modes, integration of land use and transport planning, travel demand management, establishing institutional mechanism for coordination of planning and management of urban transport system, introduction of intelligent transport system for traffic management, innovative financing mechanism, capacity building and public-private partnership.

Govt. of India supports preparation of DPR for metro projects for metro cities of 2 million and above for high capacity metro rail or alternate public transit system like BRT, LRT. He also said that Ministry has constituted National Capital Region Transport Corporation to plan, implement and operate rail based Regional Rapid Transit System. In the first phase, 3 corridors are being taken up namely Delhi - Panipat, Delhi - Meerut and Delhi – Alwar to improve the regional connectivity with Delhi. Ministry has supported 21 BRTs projects in 7 states in 11 cities – and sanctioned 15260 buses as per urban bus specification as a stimulus package under JNNURM. With the success of the scheme, in the second phase another 10,000 buses were launched in August 2013 of which 20 percent buses reserved for hilly region. For improving the efficiency of MRTS project, policy for transit oriented development should be followed. Ministry has asked Delhi Development Authority to take up Pilot Project for TOD. The emphasis should be on multi-modal integration at several levels in terms of institutional, operational, infrastructure, information and fare aspects to derive maximum benefit of public transport system. In metro projects emphasis should be on PPP mode as is being done in Mumbai and Hyderabad where mass rapid transit system in the cities are being developed on PPP mode. He mentioned that once all the four phases of Delhi Metro are completed it will have a length of 440 km. which will be longer than London metro.

Urban Mobility India conference is a unique platform for networking, sharing and disseminating the experiences by the professionals, experts, manufacturers, service providers, entrepreneurs etc. in the field of urban transport sector. He welcomed the large scale participation in the conference and expressed his confidence that the deliberations in the conference will be meaningful to promote sustainable urban

transport system across the country. On this occasion 10 modules on subjects related to sustainable urban transport projects, research study on best practices in urban transport, review of UMTA and revised toolkit for Comprehensive Mobility Plan were also released by the Hon'ble Minister.

Mr. C.K.Khaitan Jt. Secretary (UT) Ministry of Urban Development, Govt. of India proposed a vote of thanks. He thanked the members of the Organizing Committee. (List of Organizing Committee at Annexure II)

Hon'ble Minister inaugurating the exhibition and view of the Inaugural Session

C. Special Session on Sustainable City

Mr. Enrique Penalosa, President ITDP and Ex-Mayor Bogota delivered a special address on Sustainable Cities. In his address he elaborated on how pedestrian are the most important users of urban space. Design of urban spaces must therefore be oriented towards the need for developing infrastructure for pedestrians. Principles of streen design must give first priority to pedestrians, bicyclists and public transport. Space allocation for car users should not be on the planner's priority. A city that leaves no space for its pedestrians and only develop flyovers can not be termed as a truly democratic city. He shared his experiences of planning urban transport in the city of Bogota. He gave examples that how he as a Mayor, Bogota dealt with the issues of narrow roads for developing the BRTS. Road stretches in Bogota were often left completely for the use of buses and pedestrians wherever there was lack of optimum carriageway. Strong political will is the key to good planning in cities. Plans should be long term and futuristic. This is what the world class cities such as Vancouver believed decades ago and as such it is graded as one of the best cities to live in.

Mr. Enrique Penalosa addressing the Special Session

D. Panel Discussion

Panel Discussion 1: – Inclusive Transport

Inclusive transport aims at providing equal opportunities to all sections of people in the city. It plays a vital role in improving the quality of life in cities. Improvement in mobility results in higher human development index and enhances the utilitarian opportunities for the less privileged sections of the society. Transport planning has to be inclusive in nature so that it cater to the needs of all including disadvantaged groups comprising, senior citizens, differently abled persons, urban poor etc. The session focused on efforts required for development of inclusive transport.

Chair – Mr. Conrado Heruela, UNEP	
Co-Chair – Mr. P.S.Kharola, MD - BMRCL	
Rapporteur – Ms. Akshima Ghate - TERI	
Panelist	**Presentation Title**
Ms. Anjali Aggarwal Director, Samarthyam Prof. Darshini Mahadevia Dean, CEPT University Mr. Nalin Sinha Director, ITDP-India Mr. Cornie Huizenga Jt. Convener, SLoCaT Partnership	Issues related to Inclusive Transport Inclusive Transport : Contribution of Sustainable Transport to post 2015 Development Framework and Global Climate Change Mitigation

Highlights of Discussion

- Transport transforms lives and not just cities.
- Inclusive transport means accessibility to all age groups, socio-economic groups and differently abled people.
- Inclusive transport should be affordable, efficient, safe and environmentally sustainable.
- Present transport in cities is not inclusive for all users.
- Poor working women have fewer transport choices. Most women walk to work in Indian cities.
- Increase in private vehicles on one hand and lack of transport infrastructure on the other have made non-motorised mode of transport risky.

Key Issues

- Inclusive transport policies should be integrated with
  - Land use policies
  - Urban Form policies including densities
  - Urban land Policies
  - Unban design
  - Shelter Policies
  - Infrastructure decisions
- In fact, inclusiveness should be an integral part of city planning and not an afterthought.
- Paradigm shift in transport development should follow Avoid, Shift and improve approach in terms of avoid unnecessary motorised transport, shift to most effective mode of transport (people and goods) and improve environmental performance of transport.

Panelists on the Dais

Participants at the Session

Panelist making presentation

Panel Discussion 2: – Urban Transport Institutions

Indian cities face several transport related challenges. The deteriorating conditions of urban transport sector can be primarily attributed to the lack of clarity in the roles and responsibilities of the multiple organisations managing urban transport and little coordination amongst them. In 2006, the central government in its National Urban Transport Policy (NUTP) recommended the setting up of Unified Metropolitan Transport Authorities (UMTAs) in all million-plus cities to facilitate better co-ordination in planning and implementation of urban transport programmes & projects and integrated management of urban transport systems. The session deliberated on the challenges in existing Urban Transport Institutions, on setting up of and implementing UMTAs, identifying the mechanism to constitute the unified body and learning from best practices.

Chair – Dr. M. Ramachandran, Ex. Secretary, MoUD	
Co-Chair – Dr. O.P.Agarwal, Advisor, World Bank	
Rapporteur – Ms. Ishita Chauhan–World Bank	
Panelist	**Presentation Title**
Mr. Mohinder Singh LTA - Singapore	Institutional Management of Public Transport System in Singapore
Dr. Frederic Oladeinde Tech. Advisor and Head of Transport Planning Unit, LMATA	Urban Transport Institutions, LAMATA Example
Dr. S. Padam Ex. Dean, ASCI	Urban Transport Institutions
Mr. S. K. Lohia Ex. OSD (UT), MoUD	Urban Transport Institutions

Highlights of Discussion

- Urban transport is a complex issue involving land use, economics, politics, behaviour, sociology, affordability, gender, disability, engineering, finance, environment, energy, security, technology, health etc.
- Urban transport planning needs holistic approach wherein many actions are to be taken in an integrated manner. Most of the actions in urban transport planning are taken by multiple agencies that often cut across different levels of the government which is the real challenge in urban transport institutions.

- Models of lead institution for urban transport vary considerably –"no one size fits all".
- Singapore model is unique for urban transport institution where it is an integrated land transport authority having multifarious functions.
- An appropriate institution is required to oversee the aspects of planning, operation, financing, infrastructure, franchise and concession frame work, implementation etc.
- Public value, internal capacity and back up support are the key success factors for urban transport institution as in case of LAMATA in Lagos.
- Creating an Institute by itself is not enough it must be supported by good management.

Key Issues

- Fragmented responsibilities in urban transport planning need to be integrated through a lead institution having a comprehensive responsibility.
- In urban transport planning, government role should be to provide vision, policy, strategic planning and regulatory measures beside developing public transport infrastructure.
- Key issues like legal basis, jurisdiction, functions, manpower profile, management structure, leadership and financing should be considered while setting up urban transport institution.

Panel Discussion 3: – Role of Transport in Transforming Cities

Increasing traffic congestion in cities, more accidents, lack of integrated land use and transportation planning, rising pollution, increasing health risks and falling road safety are the major issues of serious concern. Mobility is essential both for society and the economy. Projections show continuing growth in the number of person-kilometers travelled by road and in the number of freight kilometers. But, if not addressed properly, increasing mobility also has downsides for society, economy and the environment. These include delays and uncertainty caused by increased congestion, health risks through emissions and noise, and lower safety levels for all road users.

Role of transport in transforming cities is about changing the way the transportation system performs so that options for people and businesses are wider. There is a strong relationship between the built environment and travel behavior. This session focused on how cities could tackle the issues related to urban transport to move along a sustainable path and to make the cities liveable.

Chair – Ms. Naini Jayaseelan, Member Secretary - NCRPB	
Co-Chair – Dr. O.P.Agarwal, Advisor, World Bank	
Rapporteur – Mr. Ashish Rao Ghorpade – ICLEI	
Panelist	**Presentation Title**
Mr. Dario Hidalgo EMBARQ	Role of Transport in Transforming Cities
Mr. Ke Feng Lead Transport Specialist World Bank	Transport and Urban Form
Mr. K. Manjunath Prasad KSRTC	Urban Transport Issues
Mr. O. P. Gupta MD, BEST	Role of Transport in Transforming Cities

Highlights of Discussion

- Reduction in use of personal vehicles can be through regulatory measures in term of designating low emission zones and reduction in the number of license (plate number) and congestion & parking charges. Ownership of cars can be reduced by licence plates lottery and licence plates quota / auction.
- Public Transport Integration is necessary for effective urban transport system.

- Sustainable transport makes the city liveable, affordable and safe.
- Transit oriented development should provide for specific development control regulations for transit stations and terminals.
- There is a complicated link between urban form and the transport infrastructure in terms of impact of different modes, affordability development sequence verses location of jobs housing, shopping centers, commercial complexes etc.
- Transport stimulates development and land use pattern.

Key Issues

- Streets for people not roads for cars should be the motto of urban transport infrastructure.
- Transport and mobility, health care, education, infrastructure, housing, culture and environment should be taken as qualitative and quantitative factors to decide the best place to live in a city.
- Sustainable transport is essential for smooth running of the local and national economy.
- Good liveability, integration of transport systems, environment, affordability, personal safety and security, accessibility should be the key factors to assess the level of urban transport and mobility.
- Urban mobility index can be devised based on a set of maturity and performance parameters.
- Maturity parameters are :
    - -Financial attractiveness of public transport.
    - Share of public transport in modal split.
    - Bike sharing performance.
    - Initiative of public sector.
- Performance parameters are :
    - -Extent of $CO_2$and other emissions.
    - Traffic related fatalities.
    - Mean travel time.
    - Density of vehicle registration.
- Sustained action should be taken by the state governments in line with NUTP to transform the growing cities into urban centers on a sustainable basis.

Participants at the session

Participants at the session

E. Technical Session

Technical Session1A: – Making Transit Oriented Development (TOD) Happen

Transit oriented development (TOD) promotes mixed land use and high population densities intended to maximize access to public transportation. This typically involves development of mixed land use neighborhoods within walkable distance designed to maximize access to and to promote use of public transportation with an emphasis on pedestrian movement and accessibility to a public transit station as its nuclei. The concept of TOD is being embraced by a growing number of cities as part of a strategy for accommodating growth without diminishing livability. The National Urban Transport Policy, 2006 emphasizes the need for efficient public transport along with integrated land use-transport. Although Indian cities are investing in mass transportation systems, transport planning is still disjointed from land use and is essentially car oriented. This session focused on providing a framework for grabbing the opportunities and challenges from transit oriented development to create sustainable upcoming communities in urban India. It also dwelt on the feasibility of TOD concept in existing urban areas.

Chair – Mr. I. P. Gautam, Vice Chairman – Ahmedabad Metro Rail	
Co-Chair – Mr. J. B. Kshirsagar, Chief Planner – Town & Country Planning Organization, Govt. of India	
Rapporteur – Ms. Raina Singh - TERI	
Speaker	**Presentation Title**
Mr. Trevor Mcintyre And Mr. Bankim Kalra IBI Group	Planning TOD in Greenfield Development
Dr. Chris Hale HOD, Melbourne University	Implementing TOD
Mr. I. P. Gautam VC, Ahmedabad Metro Rail	TOD – A Mechanism for Financing
Mr. S. D. Sharma Director (Business Development), DMRC	TOD Experience of Delhi Metro Rail

Highlights of Discussion

- In TOD, T refers to transit frequency and usefulness, O is orienting infrastructure for making pedestrian connection between transit and development and D means development featuring a mix of land uses and densities.
- Besides re-densification and redevelopment, TOD also involves integration of various components of sustainable community planning into a holistic framework.
- In North American context, TOD comprises transportation, land use and infrastructure with vibrant, compact and mixed use neighborhoods within a 5 to 10 minutes' walk from a transit station.
- TOD in Indian context requires high density and diversity of development with safe and efficient integration of all possible transport modes.
- TOD in a Greenfield context should consider likely population composition, employment generators and the real estate market capacity in the new city as it offers the opportunity to create high quality sustainable mobility.
- TOD principles followed in Naya Raipur include multimodal transit station, interconnected street pattern, mixed use development, compact development, walkability, bicycle friendly streets and parking facilities.
- In BRTS Ahmedabad, success factors are good leadership, ownership by local body, partnership with concerned institutions, media and people, pragmatic approaches and comprehensive planning.
- In India, TOD gained momentum particularly since January 2012 when MoUD issued guidelines for innovative financing.
- Increase in FAR, change in land use, development of vacant land, redevelopment of old dilapidated structures and slum areas in the influence zone are some of the important features of Transit Oriented Development.

Key Issues

- In new towns (Greenfield development) to make the TOD a success, instead of sectors based planning approach should be station area based.
- Seamless neighbourhood should be created each with a distinct character linked with diverse mobility options.
- Densities should be re-distributed based on proximity to transit service.
- There should be one coordinating agency for implementation of TOD projects.

View of the Technical Session

Technical Session 1B – Intelligent Transport System

A number of cities in India have made huge investments in developing metro rail networks, modernizing road infrastructure, improving the quality of public transport and introduction of a variety of innovative features, but still the problems of congestion and pollution persist. Transport management systems and software tools have been effective to curtail traffic woes in some mega-cities of the world. Intelligent Transport System (ITS) offer features like traffic prediction, analytics and decision support, traveller information, advisory services, ticketing and fare collection, roadside sensors, radio frequency tags, GPS to help monitor and manage transport more effectively. Smart cities drive sustainable economic growth and prosperity for their citizens. City leaders have the tools to analyse data for better decisions, anticipate problems to resolve them proactively and co-ordinate resources to operate effectively. In such scenarios ITS offers collection & analysis of extensive data collected every day and smart solutions for the transport system. This technical session emphasised on significance of ITS in planning and management of transport system in the city.

Chair – Mr. J. Satyanarayan, Secretary – Ministry of Communication and IT, Govt. of India	
Co-Chair – Mr. Taj Hasan, Special Commissioner of Police (Traffic) Delhi	
Rapporteur – Mr. Sudhir Badami	
Speaker	**Presentation Title**
Dr. Jason Chang Dept. of Civil Engineering, National Taiwan University	Traffic and Congestion Management
Mr. Erik Cample, Sr. Associate, Cambridge Systematics	Planning for the Development of ITS in Urban Settings
Mr. Manjunath Prasad MD, KSRTC	Public Transport Planning and Data Management
Mr. K. Jayakishan Executive Vice President, DIMTS	Management System in Urban Transport

Highlights of Discussion

- Green transport is necessary for liveable cities by integrating bike, bus, metro and walk through land use, urban planning, urban design, urban regeneration and application of I T technologies.
- In Hong Kong City Transport is 90% green transport.
- Taipei has converted from car oriented development to transit oriented development.
- Motorised vehicle are still the majority in our cities while pedestrian and bicyclist spaces are usually ignored.
- All metro trips with walk, bike and bus feeder green services have significant lower trip costs.
- Multi-Modal mobility integration involves land use and public transport network, operation, last mile and first mile connectivity, ticketing and pricing conformation and institutional support.
- Sustainable urban mobility is a collaborative efforts of traffic management, demand management, green transport, stakeholders involvement and leadership.
- ITS originally roadway oriented is being used in multiple modes in Karnataka.
- There is a lack of legal, regulatory and policy framework to support ITS.
- By using ITS, KSRTC saved loss making crew and buses, increased vehicle utilizations, served additional kilometers and saved operational cost.
- Major investments have been made in transport system, transport infrastructure and IT infrastructure in Karnataka.
- In Delhi, IT has been used for automatic vehicle location system, electronic ticketing machine, passenger information system, enterprise resource planning, signaling and traffic management.

Key Issues

- Investment in intelligent infrastructure should be made at various levels viz. intelligent design, intelligent infrastructure, intelligent service and intelligent use of the system.
- Need of ITS should percolate down to ULBs and STCs.
- A standard contract format should be developed to deal with various ITS issues.
- Effective implementation of ITS will go a long way to develop smart cities and smart solutions for transport problems.

Participants at the Session

Technical Session 2A – Innovative Financing Mechanism

Rapidly growing cities are facing the challenge to meet the ever increasing mobility needs of the population. Such needs can be met only through expanding the public transport infrastructure at a fast pace. But there being highly resource constraint, most of the cities are unable to do so, hence leading to a large demand-supply gap. Therefore, there is an urgent need to step up investments in the transport sector and cater to the rising mobility needs of the population. Conventionally, government has been playing the role of the key stakeholder and has been bearing the capital cost for developing transport infrastructure, and providing huge subsidies for running transport services. Fare-box revenue and revenue from some other commercial activities, like revenue from advertisements, parking charges become secondary financing instruments for transport projects. The conventional financing approach puts strain on the already constrained government exchequer. Thus, there is a need to develop innovative financing mechanisms, which not only ensure timely availability of financial resources but also provide relief to the government from the strain of providing huge financial resources for transport projects. Given the massive investment requirements for urban transport sector, the discussion in this session revolved around innovative mechanisms for financing transport projects in Indian cities such as monetising land value, increasing floor space index and dedicated taxes.

Chair – Mr. G. S. Sandhu, Addl. Chief Secretary – Govt. of Rajasthan	
Co-Chair – Mr. Vishesh Gharpale, Municipal Commissioner – Bhopal Municipal Corporation	
Rapporteur – Mr. Saurabh - DULT	
Speaker	**Presentation Title**
Mr. P. S. Kharola MD, Bangalore Metro Rail Corporation	Land as a Resource
Mr. G. S. Sandhu, Addl. Chief Secretary – Govt. of Rajasthan	Urban Transport Fund
Mr. Cherian Thomas IDFC	Public Private Partnership in Urban Transport
Mr. Anjum Parwez MD, BMTC	Pricing and Fare Fixation for Public Transport

Highlights of Discussion

- The emerging urban growth creates huge demand for transport infrastructure.
- The challenge is for policy change to make cities to finance the infrastructure requirements by capturing a portion of urban gains and to channelise them into infrastructure finance.
- Innovative sources include:-
    - New levies by statutory authorities
    - Non-Conventional users fees
    - Borrowing without government guarantees
    - Trading of development rights
    - Using land as a resource
    - Indirect measures to augment main revenue
    - Using internal strengths optimally
- Unconventional users charges are:
    - Realistic parking charges
    - Generate funds through increase in internal organisational efficiencies
- Classic example is providing ground parking, the cost of providing parking is many times higher than cost of a car.
- The initial challenge is mobilisation of funds for creating urban transport infrastructure and once assets are constructed the challenge is to monetise it.
- Indirectly main revenue can be augmented by creating rangoli center, art galleries, mini auditoriums, interactive play areas as done by BMRCL (Bangalore Metropolitan Rail Corp Ltd.).
- Rajasthan Transport Infrastructure Development Fund (RTIDF) sources are :
    - Cess on one time tax being levied on motorised vehicles.
    - Cess in the form of green tax.
    - Cess on stamp duty.
    - Funds from central or state Govt.
    - Funds received from industries to carry out social responsibilities.
- Dedicated Jaipur Metro Rail Fund includes:
    - 25% of the total revenue accrued to RTIDF from green tax / surcharge taxes on registration of vehicles.
    - 25% of the total revenue accrued to RTIDF from surcharge /stamp duty.
    - Premium FAR on properties along the metro corridors.
- There is limitation on increasing the passenger tariff.

- Other sources of revenue generation are efficiency improvement, cost cutting, popularising public transport and operational optimisation.
- Traffic and Transit Management Centers (TTMC) set up by Bangalore Metropolitan Transport Corporation provide integrated transportation facilities and amenities to cater to the requirements of all user groups. These centers also provide first mile connectivity through provision of park and ride facilities.

Key Issues

- There is a need to establish TDR exchange in each city.
- Land usage should be economised.
- There should be shift in focus from Capital saving technologies as land becomes relatively more scarce than capital.
- Cess to fund urban infrastructure should be enhanced as with each new development, demand for enhancement of trunk infrastructure also increases.
- Local authorities can capture the additional land value with the development of urban infrastructure by increase in property tax, higher rates for new building permits, revising guidance value for property registration.
- Public utilities land, wherever available, should be commercially exploited.
- TDR instrument need to be properly operated, by giving TDR in lieu of monetary compensation for land acquisition and for generating substantial revenue for infrastructure projects.
- Transport development fund should be created and be placed at the disposal of integrated agency which looks after the transport planning and development.

Technical Session 2B – Rail Transit Systems - Alternate Modes

NUTP motivates building of people centric urban transport solutions instead of focusing on improving the conditions for private motor vehicles. It has identified a wide spectrum of public transport technologies ranging from high capacity and high cost technologies like the underground metro systems to high capacity and low cost bus rapid transit systems. With the recent government policies and initiatives, cities that have population of more than 2 million can opt for Metro or mono-rail network for intra-city travel. MoUD has decided to consider the proposal and even approved metro or mono-rail for some cities like Lucknow, Jaipur, Kanpur, Patna, Ahmedabad, Pune and Surat. The role of Ministry of Railways would be significant as the Vision 2020 of Indian Railways states that Indian Railways has significant core competence for development of metro rail services as it has all the capabilities to execute such projects with substantial cost reduction. This session deliberated on the role of rail transit systems and alternate modes.

Chair – Mr. S. Akimura, Vice President – JTPA Research Institute	
Co-Chair – Mr. Sushil Jaitly, Head of System Integration India– Bombardier Transportation	
Rapporteur – Mr. Ranjith Parvathapuram	
Speaker	**Presentation Title**
Mr. Etienne Lhomet Member, Codatu	Light Rail Transit
Mr. S. Akimura Vice President, JTPA Research Institute	Japan's Urban Transport Policy and the New Transport System
Mr. Riyaz Rashid Head of Sales and Business Development System Integration Asia-Pacific, Bombardier Transportation	Monorail Technology

Highlights of Discussion

- The evolution of civilization and transport in historical perspective starts form slow civilization having old rural and urban equilibrium followed by industrial revolution resulting into big urban crunch, the consumption society leading to big urban sprawl and now post carbon civilization with metro polarization a regional equilibrium.

- Transport engineers, transport planners and urban dreamers when meet can build a great public transport project.
- The capacity of the vehicle places the tram between buses and metro.
- The total investment cost per kilometer for a complete line also places the tram between BRT and Metro.
- The operational cost per kilometer travelled within the same country also places the tramway between bus and metro.
- Tram length can be increased progressively. The higher the capacity the cheaper the system is per passenger.
- The more the living standard of a country increases, the more is the economic advantage of the BRT compared to the tramway.
- Japan's standardized automated guide way transit systems are the new transport systems which have been introduced outside Japan also.
- Merits of new transport system are: sufficient transport capacity, environment friendly and stable system, easy to turn around, simplified structure, lower cost for construction, safer system in an emergency, no driver need for operating trains etc.
- Innovia monorail 300 system developed by Bombardier (Germany) have the following features:
    - Fully automated driverless mass transit solution.
    - Broad range of application.
    - Seamless integration into urban environment and route flexibility.
    - Fast and easy implementation.
    - Low system and fleet cost.

Key Issue

- A hierarchized public transport network for developing metropolis should have mini buses, other buses, priority buses, LRT, BRT and MRT.

Panelist on the Dais

Technical Session 3A – Managing Parking

Explosive growth in new vehicle registrations in Indian cities has led to massive parking problems. Lack of space for parking is leading to encroachment of limited road space and aggravating the congestion on roads. The gravity of the situation can be understood from the fact that about 1200 new vehicles are being added to Delhi roads daily. As per the conventional planning approach, it is assumed that generously planned parking spaces would solve parking problems. However, from the world experience it has emerged that excessive parking can also create problems as it may incentivize the use of personal vehicles. Parking strategies can be instrumental in inducing modal shift from private vehicles to public transport systems, thereby offering an effective solution to transport related problems like traffic congestion, safety. This session focused on discussing the approaches required to manage the increasing parking demand, parking pricing and parking management in Indian cities.

Chair – Mr. S. Ragunathan, Ex Chief Secretary – Delhi	
Co-Chair – Mr. Puneet Goyal, Transport Commissioner – Delhi	
Rapporteur – Mr. Sujit Patwardhan	
Speaker	**Presentation Title**
Mr. Manfred Breithanft Senior Transport Advisor, GIZ	Parking Policy
Deepak Darda Associate Director, IBI Group	Parking Technologies
Ms. Sulakshana Mahajan And Mr. Pawan Mulukutia, MTSU	Rethinking Parking in Indian Cities: Case study of Mumbai
Mr. S. Ranganathan V.P. TSG ACS of India Pvt. Ltd.	Innovations in Urban Planning

Highlights of Discussion

- Parking is an important component of transportation but has a major cost to the society.
- A typical automobile is generally parked for 23 hours in a day and uses several parking spaces in a week.

- ❖ Parking control and pricing are the most commonly applied demand management measures.
- ❖ Nothing else has changed the traditional streetscape as dramatically as parked cars have done during the last few decades.
- ❖ Cities need parks and not city parks.
- ❖ Guiding principles of parking are:
    - Establish parking hierarchy.
    - Multimodal consideration.
    - Efficient utilisation of existing supply.
    - Flexible parking standard.
    - Differential parking strategies.
    - Parking as a luxury – Market based approach.
    - Technology application.
    - Decriminalise parking enforcement and proactive applications.
    - Awareness and education.
    - Integrated land use with parking.
    - Safety to user and vehicle accessibility for all.
- ❖ Current approach for parking management is ineffective management of on-street parking, parking supply to cater the demand, multilevel car parking and FSI incentives to developers to build parking lots.
- ❖ The current mindset is to address the parking issue only when parking causes congestion.
- ❖ Average walking distance per day has been recorded as 0.91 km and average cycling distance as 2.7 km in Mumbai.

Key Issue

- ❖ Parking regulation and policies should have limit on street parking time, limit the use of on street parking to area residents, limit restriction on street parking for large vehicle and mandatory off street parking proof to purchase vehicle.
- ❖ Incremental approach should be followed for meeting the parking needs.
- ❖ Parking meters should be installed at parking lots to control the parking time.
- ❖ Key objectives in parking management should be to reduce the time a customer spends on parking, optimise space utilization and revenue, create deterrence for maximising collections.

Participants at the Session

Panelist on the Dais

Technical Session 3B – Transit innovations

In an urbanizing world, the impact of cities on economic development is well known. Every city needs an effective transport system to improve the accessibility and mobility needs by using different technologies. The essence of innovation is improvement over current practice through the exploitation of advances in knowledge. A good knowledge of the existing and emerging technologies is required for selecting a technology suited for the city, based on – demand requirements, safety considerations, topography, funds availability and the capacity of industry to locally manufacture and supply the technology. The National Urban Transport Policy lays emphasis on adopting newer and cleaner technologies for urban transport. But the lack of funds/resources and lack of local technologies makes it difficult for the best technology to be selected and implemented. The discussion in this session focused on the principles that should be employed while choosing the mass transit technology for cities, different latest innovative technologies around the world, their applicability to Indian cities and the capacity of our institutions and industry to implement/provide these technologies locally.

Chair – Mr. Ashutosh A. T. Pednekar – Collector Udaipur	
Co-Chair – Mr. Chandramauli Shukla, MD – BCLL	
Rapporteur – Mr. Ashok Dadar	
Speaker	**Presentation Title**
Mr. Ashutosh A. T. Pednekar Collector Udaipur	Transforming IPT through Mini Cabs
Mr. Mohinder Singh LTA - Singapore	Singapore Example
Mr. B. C. Ramesh Chief Mechanical Engineer And Mr. Basalingapa Divisional Traffic Officer NEKRTC	Bus Innovations in Small Cities
Mr. Nilcolas Doucet And Mr. Mc Farland PTV Group	The Worldwide Rise of Bus Rapid Transist

Highlights of Discussion

- Alwar Wahini launched in Alwar has filled the gap in public transport. It replaced 3 wheelers in the town.
- Survey shows high level of satisfaction among citizens. Other initiatives taken are city taxi service and gramin Alwar Wahini.
- It has transformed urban and semi urban transport scenario and needs.
- In Singapore, transit is integrated with development in terms of mixed use, high density, good connectivity, transportation choices, high quality design.
- Main issues of BRT are encroachment of lane use, access to stations, vehicle capacity, infrastructure requirement and passenger comforts.

Key Issues

- Example of Alwar Wahini could be emulated in other big cities also to integrate IPT and PT.
- In small towns with narrow roads flexible approach should be followed for IPT to increase its share in public transport.

Participant asking question

Technical Session 4A – Travel Demand Management

Rapidly growing urban population together with increased economic activities and city size has resulted in increasing the demand for urban mobility. Increase in passenger mobility demand in Indian cities hasn't matched by an equal increase in supply of transport infrastructure and services. This has resulted in increased use of private vehicles and decline in the use of public transportation and NMT in the cities. A trend that has resulted in problems related to traffic congestion, deterioration of air quality, increase in number of road fatalities and accidents and loss in economic productivity. In the urban areas, the conventional approach to transport planning addresses these problems by enhancing the supply of transportation infrastructure and services which offers only a temporary solution to the traffic problems of the cities. Instead the travel demand management strategies focus should be on modifying the travel behavior in order to reduce the negative externalities related to transport. The focus of the session was on discussing the issues and opportunities that TDM measures hold for solving the traffic problems in the Indian cities. The session also indicated the kind of TDM measures such as congestion charging and car free zones enhancing use of public transport and NMT modes that Indian cities should start considering for implementation.

Chair – Mr. Jagan Shah, Director – NIUA	
Co-Chair – Mr. Rajiv Malhotra, CRP - NCRPB	
Rapporteur – Mr. Ranjit Gadgil	
Speaker	**Presentation Title**
Prof. Shivanand Swamy CEPT University	Cohesive Policies for Reducing Need for Travel
Dr. Adnan Rahman Cambridge Systematics	Congestion Charging
Mr. Dominik Schmid GIZ	Implementing TDM Measures

Highlights of Discussion

- In India, vehicle ownership is 50-75 cars per 1000 people, 200 two wheelers per 1000 people and 100 bicycle per 1000 people.
- Supply oriented measures often have negative side effects and do not help in easing the transport problems in the long term.

- Demand for transport services depends on transportation policies, pricing, investment and user choices.
- Travel demand measures include:
    - Land use development controls.
    - Public transport integration.
    - Parking control and management.
    - Regulatory controls such as odd/even system.
    - Physical measures such as bus and pedestrian priority.
    - Pricing and charges through fuels taxes.
    - Congestion charging.
- TDM offers the chances of improving urban transportation at low cost and within a rather short time.
- Successful TDM strategies involve a good set of measures of both the pull and push categories. A car user can only use other means of transport if there is good offer of public transport or NMT.
- Roads are congested when commuting time is on an average 25% longer than off peak travel time.
- Congestion imposes many externalities in terms of direct and indirect costs.
- Congestion charges have to be part of a broader plan and package to manage travel demand.
- Singapore benefitted a lot in introducing area licensing scheme in terms of reduction in entry of cars to the restricted zone, increase in speed and increase in shift to HOVs.
- Congestion charging if properly implemented in conjunction with other demand management measures can be effective in reducing congestion.

Key Issues

- Investment in new infrastructure should be limited to improve the efficiency.
- TDM policies should not be implemented as isolated instruments, it should be embedded in a comprehensive framework of transport demand management measures.
- Principles for implementing congestion charges should be – acceptability, enforceability of the charging scheme, revenue neutrality and revenue use, clear objectives of the charging scheme, value pricing and area pricing.

- Each city should design and initiate an analysis base planning process for managing congestion.

Anchor posing the question for Audience Poll

Panelists on the Dais

Technical Session 4B – Buses for All

Indian cities are witnessing tremendous urban growth which is generating high travel demand. To support such high level of travel demand, there is a need to augment the public transport systems in the cities. One of the most cost–efficient options among different types of public transport systems is the public bus transport system, as it runs on the existing roadway facility, and offers service at lower cost per passenger km. The city bus services in the Indian cities are often unreliable, run at low frequency, with inadequate route density, and lack proper infrastructure. Given the importance of public bus transport systems in meeting the mobility needs in Indian cities and the challenges faced, the session focused on – bus operations, accessibility for public transport and learning's from implementing BRT in India cities and need for improving bus systems. It also dwelt on how to augment bus service in cities, and public bus transport system which can solve the urban transport problems of Indian cities, to a large extent.

Chair – Mr. G. S. Sandhu, Addl. Chief Secretary – Govt. of Rajasthan	
Co-Chair – Mr. O. P. Gupta, MD - BEST	
Rapporteur – Mr. Vidhyadhar Date	
Speaker	**Presentation Title**
Dr. Frederic Oladeinde Tech. Advisor and Head of Transport Planning Unit, LMATA	Bus Operations
Mr. Sandeep Gandhi Director, Sandeep Gandhi and Associates	Accessibility for Public Transport
Mr. Chandramauli Shukla MD, Bhopal City Link Ltd.	Learning from Implementing BRT
Mr. Sandeep Soni MD, AICTSL	Learning from Operating BRT

Highlights of Discussion

- BRT provided a welcome change to the initial situation of chaos in public transportation in Lagos state
- Bus rapid system implemented at less cost with lesser implementation hurdles and greater operating flexibility in Lagos as compared to other cities.

- Universal access to public transport refers to access to feeder modes, station /bus stop and vehicle.
- Basic features of universal accessibility are missing in Indian public transport system.
- In spite of the Metro Rail, buses will continue to be the backbone of urban areas

Key Issues

- Universal access to public transport is not an option but a legal requirement as per Persons With Disability Act of 1995.
- Detailed guidelines, norms and standards are required to ensure universal access to transit.
- Policies of the govt. should promote use of bus services in the city.
- An evaluation of existing BRTs in various cities should be undertaken.

Panelist addressing the Session

Participant seeking clarification

Technical Session 5A – Intermediate Public Transport

Auto rickshaws have emerged as a popular mode for daily travel especially in small and medium size cities. They form an essential part of passenger public transportation services offering faster, flexible, door-to-door services and affordable services to the commuters. They provide last mile connectivity between the public transport modes and the final destination, or complement other formal modes like BRT, Metro, and other MRT systems. Despite their vital role, they are often neglected and are not considered as a part of overall mobility framework. It is realized that this IPT mode if integrated with other modes has the potential in meeting the future mobility needs in a more efficient manner. Various strategies should be explored to integrate it with other modes. The discussion in the session focused on giving due recognition to auto rickshaws as a travel mode as well as a feeder system in our cities, identifying strategies to integrate these modes in our transportation system and bringing about improvement in the existing IPT system.

Chair – Mr. K. K. Gandhi, Executive Director – SIAM	
Rapporteur – Ms. Virandra Vidrohi	
Speaker	**Presentation Title**
Ms. Ritu Anand IDFC	Role of IPT in Small and Medium Towns
Mr. Nirmal Kumar Nirman Foundation	G-Auto in Ahmedabad
Mr. Robin Chase Board Member WRI	Zipcar Washington

Highlights of Discussion

- G - Auto operation in major cities of Gujarat and also in New Delhi benefits all auto-driver, passenger and business associates.
- Large number of corporate houses and government departments in Gujarat are patronizing the G. Auto project which has made major impact as IPT mode.
- IPT has been playing a niche role as a feeder to mass public transport and for very short trips.
- IPT is often a primary mode of public transport in small and medium towns and especially important for poor who cannot afford private transport.

- No specific guidelines for two/three wheelers under the Central Motor Vehicle Act 1988.
- Restricted policies force the IPT providers largely operate informally.
- There is negative environment implication due to lack of regulations on emission.
- There is lack of local institutional support for organising IPT in terms of building rickshaw stand / lanes for non-motorised transport and other services.

Key Issues

- Caps, if any on permits, for IPT operation need to be rationalised and relaxed.
- IPT should be properly integrated with mass public transport as it serves first and last mile connectivity.
- Sustainability of IPT mode should be promoted.
- IPT modes at local level should be recognised to facilitate registration and licensing.
- Clear polices should be formulated allowing advertisement on IPT Vehicles.
- Integrate IPT in land use and transport planning.

Panelists on the Dais

Participants in the Session

Technical Session 5B – Eco Mobility in Cities

Eco-mobility concept promotes travel through integrated, socially inclusive, and environmentally-friendly transport options. The eco-mobility approach highlights the importance of public and non-motorized transport and promotes an integrated use of all modes in a city which relatively generate lower emissions as compared to the personal automobiles powered by fossil fuels. In India, initiatives like incentivizing of electric vehicles & NMT, and development of integrated multi-modal transit systems to reduce pollution by improvements in public transit have already started and can play a major role in promoting eco-mobility. The discussion in the session included the concept of walkability, NMT Infrastructure and pedestrian safety as well as the concept, vision, approach, perceived challenges for promoting eco-mobility in Indian cities, and lessons from best practices that can be replicable in Indian context.

Chair – Mr. C. K. Khaitan, Joint Secretary - MoUD	
Co-Chair – Mr. Alok Mittal, Commissioner of Police – Gurgaon	
Rapporteur – Mr. Amar Nath	
Speaker	**Presentation Title**
Mr. Amit Bhatt EMBARQ	Raahgri Day – Car Free Streets in Gurgaon
Ritchie Anne Rano CAA	Walkability
Mr. Arvind Kumar	NMT Infrastructure
Ms. Neha Khullar Project Director Muskan Foundation	Pedestrian Safety along BRT

Highlights of Discussion

- In Gurgaon, one day in a week is observed Raahgri day means car free streets for certain hours during the day. For making the programme popular, organisers conducted the sensitising workshop and also had stakeholder consultation.
- NMT users get minimum road space but cause maximum deaths on road.
- Improving walkability entails improvement not only in physical infrastructure but equally in the minds of the people.
- Sustainable transportation requires the harmonious balancing of three element (3E -> Economics, Environment and Equity)
- Land requirements for new roads and car parking is rising fast.

- Proportion of households owning bicycle have declined from 37.60% in 2001 to 30.60 in 2011 in Delhi.
- Full segregation of road space gives exclusive right to cyclists / pedestrians and makes it physically difficult for motorised traffic to trespass on that right.
- Excessive focus is on big ticket items-metro, bypasses, flyovers etc.
- Excessive media focus is on the problems and issues connected with the motorised transport.
- In Rajasthan, during 2008-13 population increased by 9% while vehicles increased by 52%.

Key Issues

- Reclaim underutilised roads and convert them to public urban apace.
- Create pedestrian oriented commercial space and neighbourhoods.
- Undertake user surveys to identify problems and barriers to NMT.
- Segregated NMV lanes be made gradually on all arterial roads (10% road length every year, 100% coverage in 10 years)
- Create facility for walk and cycle lanes in all 2 lakh + population cities and state capitals.

F. Round Table Discussions

Round Table 1– Pedestrian Safety in Indian cities

Road traffic injuries and deaths have become a major public health concern in India. Total number of people involved in traffic crashes as well as fatalities per million persons have been increasing over the years. Although at present non-motorized transport (NMT) and public transport trips constitute a vast majority of trips in urban areas, use of personal motorized vehicles (two-wheelers and cars) has also been rising posing greater risk to pedestrians and cyclists. The trend is accompanied by a rise in accidents and deteriorating air quality in cities. A significant proportion of urban population cannot afford personal motorized vehicles and are dependent on public transport. Subsidized bus systems are also too expensive for them for their daily commuting and as such they use NMT. According to the RITES Report on Traffic and Transportation Policies and Strategies in Urban Areas in India even in the megacities (population more than eight million), more than 30% of the trips are made by NMT, a similar number by public transport (formal bus systems, informal bus systems and three-wheelers), and the rest by personal motorized vehicles (PMV), i.e., cars and two-wheelers. The pedestrian safety should be the priority while planning for transport infrastructure both public transport and NMT. The Round Table focused on the issues and feasible solutions for NMT facilities and safe roads.

Chair:-	Mr. Nihal Chand Goel, MD, Jaipur Metro Rail Corporation
Co-Chair:-	Dr. R. N.Batta, MD, Himachal Road State Transport
Presenter:-	Dr. Geetam Tiwari, IIT Delhi
Rapporteur:-	Mr. Shree Prakash

Highlights of Discussion

- 15% of road accident deaths are in million plus cities – mainly along the national highways.
- Pedestrians are the largest number of victims followed by motorised two wheelers.
- NMVs are more than 60 % of total vehicles in large cities.
- There is huge gap in accidents death data between city FIR and National Crime Research Bureau record.

- Most crashes are away from junctions.
- Roundabouts have less number of accidents.
- Marked pedestrian crossing reported increase in fatalities by 20% as compared to unmarked.
- With raised level of crossing fatalities reduced by 40%
- Investment in transport infrastructure without pedestrian facilities has resulted in increase in total crashes and also pose risk to pedestrian.
- Fatality rates are increasing almost in all cities.

Key Issues

- Clean and continuous pedestrian paths on arterial road should be mandatory.
- Scientific designed round about are safer for pedestrians.
- There should not be free left turn.
- Need for safety conscious planning, design, construction and operation of roads.
- Speed should be managed by design viz. – traffic calming – urban speed limit should not exceed 50 km/h.
- Specific lighting should be provided for pedestrians and bicyclists.
- Appropriate infrastructure design (pedestrian and bicycle facilities and speed control measures) can reduce the number of crashes.

Ms. Geetam Tiwari addressing the Session

Partcipants in the Round Table Discussion

Round Table 2– Bus Karo: Modernizing City Buses Service

Decision-makers in India have almost accepted the fact that bus-based transport services will be the backbone of urban public transport in the years to come in view of low cost, quick implementation and flexibility. National Urban Transport Policy has emphasized on the principle of 'moving people, not vehicles'. MoUD has provided 63 cities with funding for more than 15,000 buses and supported 12 cities with the funding to implement BRT projects. Despite this growing support, bus transit agencies in India continue to face challenges. This session dealt with challenges and the solutions to develop bus-based public transport services and implement BRT systems that are efficient, accessible, reliable, affordable and safe and making them the preferred mobility choice for a majority of people.

Chair:-	Mr. Anjum Parwez, MD, BMTC
Co-Chair:-	Dr. Sanjay Gupta, SPA – New Delhi
Presenter:-	Mr. Dario Hidalgo, EMBARQ
Rapporteur:-	Shell

Highlights of Discussion

- There has been exponential growth in number of bus routes in large cities.
- The existing fleet size in major cities cannot keep pace with the exponential increase in number of routes.
- Long routes result in long wait time on individuals routes.
- The frequent bus network improves system simplicity, quality of services, system capacity and flexibility.
- In a big bus network – feeder services are used for peripheral services.
- Shorter length of feeder routes result in reduced waiting time from the main road.
- Implementation of the frequent bus network as done in Bangalore face the challenge of transfer by the passenger, integrated fares, education and awareness of the system.

Key Issues

- In the big bus network-feeder services for peripheral destination should be provided connecting to the main roads.
- Increase in frequency can help the problem of transfer and unified branding user information at bus stop can improve education and awareness and facilitate charging integrated fare.
- There is a need for integration of bus network at five level namely – physical, operational, fare, institutional and image of the systems.

Participants in the Round Table

Round Table Discussion view

Round Table 3 – Comprehensive Mobility Plan Toolkit

In 2008, Ministry of Urban Development (MoUD) with the assistance of the Asian Development Bank (ADB) prepared and issued a Toolkit for Preparation of Comprehensive Mobility Plan (CMP) for the cities. MoUD encouraged cities to prepare CMPs before seeking funding for urban transport projects under Jawaharlal Nehru National Urban Renewal Mission (JNNURM). More than 50 cities have prepared CMPs using CMP toolkit. A critical review of some of the CMPs submitted by city authorities, undertaken by IUT and TERI revealed that CMPs have not followed the toolkit in letter and spirit and do not meet the requirement of economic, social and environmental sustainability of urban transport system. Since then as part of National Action Plan on climate change, Govt. of India constituted 8 Missions on issues of national importance including National Mission on Sustainable Habitat with Ministry of Urban Development as the Nodal Ministry for this Mission. The Mission aims at making urban habitat sustainable through urban planning techniques, modal shift in favour of public transport and non-motorised transport and to achieve reduction in CO_2 emission. The existing toolkit does not require the CMPs to estimate the long term GHG (Green House Gases) emissions. Simultaneously, the United Nations Environment Programme (UNEP) has taken up a Project on Promoting Low Carbon Transport in India by taking up case studies of Udaipur, Rajkot and Vishakhapatnam cities. The Project is endorsed by the Ministry of Environment and Forest, Government of India. As part of the Project a methodology has been developed for preparing Low Carbon Comprehensive Mobility Plan with focus on local environmental Quality, social inclusiveness for all sections of society and genders and reduction in greenhouse gas emissions and has suggested changes in the Toolkit for CMP.

Review and update of Toolkit for CMP has also become necessary to incorporate suggestions and recommendations of the Expert Committees and Groups on Urban Transport and the Policy enunciations by the Govt. of India in this regard. Accordingly, taking into consideration the views of the experts, city officials and other stakeholders a revised Toolkit for CMP has been prepared.

Discussion in the Round Table focused on the provisions for public transport and NMT in the Model share and making the CMP as an integral part of Master Plan.

Chair:-	Mr. B. I. Singal, DG - IUT
Co-Chair:-	Mr. R. K. Singh, Director - MoUD
Presenter:-	Mr. Subhash Dhar, UNEP
Rapporteur:-	Ms. Deepti Jain,IIT Delhi

Highlights of Discussion

- The existing toolkit for CMP required to be revised in view of the change in policy context since – 2008 in term of climate change, service level benchmarks, National Mission on Sustainable Habitat provisions, advisories issued by MoUD, strengthening of public transport and non-motorised transport and emphasis on inclusiveness.
- Strategy to reduce CO2 emission from transport without compromising the accessibility and mobility needs of the people.
- CMP to follow comprehensive approach in respect of data collection, integrated analysis and comparison with indicators and service level benchmarks.
- Case studies of Vishakhapatnam, Rajkot and Udaipur revealed that reduction in CO2 emission could be achieved by attempting alternative scenario as compared to BAU scenario.

Key Issues

- Alternative scenarios should be worked out in the CMP to suggest suitable proposal for sustainable urban transport.
- CMP should be an integral part of Master Planning process so as to provide statutory backing.
- For analysis of transport scenario in the city traffic analysis zone size should be of the small size.
- In CMP, emphasis should be on public transport and NMT.

View of Round Table Discussions

Round Table 4 – Service Level Benchmarks

Cities have been the recipients of funds under the Jawaharlal Nehru National Urban Renewal Mission (JNNURM) for projects aiming to improve urban transport. To evaluate the impact of these projects in improving urban transport in the cities, the Ministry of Urban Development (MoUD) had published the Service Level Benchmarks (SLBs) in 2009 to help cities measure the improvements in their urban transport systems and benchmark the performance. SLBs have been formulated in a manner that city specific performance parameters can be defined and monitored to assess improvements in the quality of urban transport. With the work being done in 12 pilot cities, the discussion in this Round Table focused on the issues related to implementation of SLBs and the capacity of the city authorities to collect and compile information as per SLBs needs.

Chair:-	Mr. Sudhir Krishna, Secretary, Urban Development, Govt. of India
Co-Chair:-	Mr. S. K. Lohia,Ex-OSD (UT), MoUD
Presenter:-	Prof. Shivanand Swamy, CEPT University
Rapporteur:-	Ms. Nimisha Pal

Highlights of Discussion

- Benchmarks a good approach to identify gaps and problems in existing situation.
- Benchmarking is a better technique than audit and evaluation of transport situation.
- Benchmarks suggested by MoUD are partly comparable with globally set of benchmarking.
- NUTP strategies regarding benchmarks need to be aligned with National Mission on Sustainable Habitat.
- There is need for adapting indicators for hill cities because of geographical constraints, population size comprising residents and visitors and functionality.
- Study on level of services as per benchmarks conducted in sex cities of Ahmedabad, Surat, Mysore, Hubli – Dharwad, Bhubaneshwar and kohima revealed a wide gap in transport situation in these cities particularly in usage of ITS, parking, pedestrian infrastructure, NMT, IPT etc.

Key Issues

- Indicators for hill towns should be flexible in view of geographical condition, travel habits, building requirements etc.
- Road network should be complete in term of hierarchical system in the cities.
- Benchmarks should be integrated with planning and budgeting.
- Relative weightage to various indicators and service level benchmarks should be assigned towards realisation of NUTP – 2006 goals.

Address by Session Chair

Participants in the Round Table Discussion

Round Table 5 – Access to Public Spaces

A public space is a social space that is generally open and accessible to people. Roads (including the pavement), public parks and beaches are typically considered public space. As cities expand their investments in high quality public transport systems, it is essential to provide high quality and safe pedestrian infrastructure and other facilities to access public spaces. These investments will help improve safety for existing users and are essential for cities that wish to expand the access to these public spaces. This Round Table focused on identifying infrastructure gaps and improvement in facilities needed to access the public spaces like prioritizing non-motorised transport improvements, creating fine-grained network of pedestrian-friendly streets to reduce walking time etc.

Chair:-	Mr. Chetan Vaidya, Director SPA - New Delhi
Co-Chair:-	Mr. S. K. Jagdhari, Vice President - IUT
Presenter:-	Ms. Shreya Gadapalli, ITDP
Rapporteur:-	Ms. Anvita Arora, iTrans

Highlights of Discussion

- Parks, plazas and open spaces are being paved and used for parking.
- Good neighbourhood design help to walk to public spaces as the compact layouts bring homes, parks, other public spaces within easy reach.
- Active street edges with storefronts or residential entrances instead of compound wall make walking to public spaces safe and enjoyable.
- Improvement in road space result in reduction of accidents and injuries
- In Copenhagen, known as bicycle capital, 37% of total trips are by bicycle. 61% use bicycle because of convenient, fast and easy movement, whereas 19% use for exercise, 6% feel it is cheap and one percent use as a clean environment.
- In Europe, trend is to reclaim the street space for pedestrian and cyclists.

Key Issues

- Revenue from parking can be used to fund street improvement, street infrastructure and facilities for NMT infrastructure.
- Wherever possible spaces may be earmarked in the road cross section for pedestrian use and access rather than through traffic.
- The need is to build parks not parking.

- The walking distance to a parking place has to be as long as the walking distance to the public transport stop.
- There should be progressive parking charges as per the time of parking.
- Parking should be treated as a commodity and not a public right.
- Mix access to variety and connect access to transit.
- Greenways network should be developed.

Session Chair

Moderator making presentation

Round Table 6:– Fuel Efficiency and Emission Guidelines for Buses

Fuel quality impacts on emissions are minor to moderate. The major impact occurs when fuel quality is modified to enable engine and after treatment function:

- Gasoline lead phase-out enables catalysts,
- Severe sulphur reduction enables Tier 2 and highway diesel after treatment,
- Deposit additives can have significant impacts.

This session dwelt on the latest in fuel technologies including fuel cells, hydrogen, biofuels and biodiesels, with specific focus on applications in transport. Industry, research and government initiatives. Case studies and follow-up activities including deployment opportunities presented. In addition, research and industry initiatives regarding hydrogen and fuel cell activities, influence of fuels on vehicle design and development of alternative fuel engines discussed to understand the benefits accrued from such initiatives as learning lessons for the Indian market.

Chair:-	Mr. Ajay Mathur, DG - BEE
Co-Chair:-	Mr. Conrado S. Heruela, UNEP
Presenter:-	Mr. Sameera Kumar Anthapur, Transport Researcher, Clean Air Asia Mr. Gaurav Bansal, Researcher -The International Council on Clean Transportation
Rapporteur:-	Ms. Shilpa Kharwal, Shakti Foundation

Highlights of Discussion

- International Council on Clean Transportation mission is to improve the environmental performance and efficiency of cars, trucks, buses and improve public health, the environment and the quality of life.
- Heavy Commercial Vehicles (HCV) consume overwhelming share of fuels in India.
- Buses in India use 25% of fuel consumed by HDV fleet as compared to 4% in USA.
- By 2030, bus population and fuel consumption will grow in India by 140% and 220 % respectively.
- Hybridization and engine improvements have greatest potential to reduce bus fuel consumption.
- Pressure to keep buses in circulation result in less time for maintenance.

- On the whole, availability of data on fuel consumption in India is poor as compared to USA and European countries.
- However, KSRTC and APSRTC have improved management, data collection, O&M and fuel efficient driving.
- APSRTC saves about $ 2.6 million per year by improvement in fuel efficiency.
- Small number of vehicles are moving large number of people.

Key Issues

- Enough awareness should be created for the use of green fuel technology and incentives be given for improving the fuel efficiency.
- Fuel efficiency standards for HDV should be mandated as soon as possible. Starting with engine followed by fuel efficiency.
- Standardised bus maintenance programme should incorporate fuel efficiency optimisation into the process.
- Institutes dealing with driver training programme should ensure consistent fuel efficiency driving.
- Ensure appropriate and accurate data collection for bus fleets.
- Publish emission details along with annual performance data.
- Create national registry of private buses.

Participants expressing their views

View of Round Table Discussion

Round Table 7:– Model Bus Operators Agreement on Gross Cost Contract

Most of the public transport units in India have been suffering huge financial losses and are not able to recover even the operating cost from the fare box. Overall, persistent losses have been seen in the currently operating bus service systems owing to increasing input costs (fuel, maintenance, etc.) and declining productivity. The problem is aggravated due to the waste of resources – unnecessary vehicle operating costs, time wasted, and environmental degradation. Keeping in view the socio-economic conditions of the people, fares are also kept low as a measure of social equity. As a result, most public transport systems are unable to recover their operating costs. Financial inefficiency has in fact, led to poorly operated systems that are hardly financially sustainable and compromise on the quality of the service that is offered. The session discussed the above issues and identified the reasons for the financial losses of the urban bus public transport in India, the issues and challenges faced by the city governments in improving productivity of the city bus services and the potential solutions to address these problems.

Chair:-	Mr. S. K. Lohia, Ex-OSD (UT) MoUD
Co-Chair:-	Ms. Suchi Sharma, MD - JCTSL
Presenter:-	Mr. Laghu Parashar, Sr. Manager - UMTC
Rapporteur:-	Mr. Rohit Sharma, Sr. Officer - UMTC

Highlights of Discussion

- After Model Procurement Agreement for Bus prepared by MoUD the need is to prepare model operators agreement for buses being purchased by cities under JNNRUM.
- Upfront payment towards bus purchase cost may create huge financial burden on the operators particularly when the buses are being mortgaged for raising the fuel under tri-partite agreement.
- Determination of bus transfer cost can be audit objection.
- Operators may try to influence the bus specifications by introducing / suggesting lower quality bus aggregate for the buses to keep their inventory cost low.
- In the absence of operator not having land for depot or parking space, the situation may adversely affect the project.

Key Issues

- The provision for upfront payment towards bus purchase cost needs to be reviewed.
- The qualification criteria for new firm acquiring the stake in bus purchase should be pre-defined.
- Financial flexibility for SPV may be provided.
- Issues regarding operationalization of insurance proceeds need to be sorted out.
- Minimum quantum of kilometers and periodicity of kilometers need to be assured.

Discussions in the Round Table

Round Table 8: – Freight Management

Freight traffic and movement of goods within the city and 'passing through' intercity traffic affects overall city mobility. Passenger movements are concentrated in the morning and evening peak hours; freight movements are spread over 24 hours a day. While goods vehicles in view of their size, low maneuverability, noisiness, and high pollution output may be problematic but they are vital to the economy and well-being of society. Commerce is dominated by goods vehicles, and the logistics industry in particular is dependent on road transport for pickup and delivery. Garbage pickup and fire protection are among many essential services that are vehicle oriented.

As the freight management is largely private sector activity it is difficult to control and many of the decision that affect goods vehicles are made by the industry itself. Several cities are seeking to limit goods vehicles as pressures keep mounting. In many jurisdictions, limits on heavy goods vehicles in urban areas are in place with restrictions on the times of delivery and pick up, In some cities it extends to the exclusion of all trucks in the urban core during daytime hours. There needs to be a much greater focus on planning for movement of goods traffic, since it is almost universally recognized that transport of goods is important and will grow with economic growth. The subject was deliberated at depth to evolve planning norms for roads, hubs and logistic for freight movement without affecting passenger movement in cities.

Chair:-	Mr. A. S. Bhal, Economic Advisor - MoUD
Co-Chair:-	Mr. Adnan Rehman, Cambridge Systematics
Presenter:-	Mr. Anil Shukla, Addl. Commissioner of Police, Delhi
Rapporteur:-	Mr. Kartik Kumar, GIZ

Highlights of Discussion

- Goods traffic is critical for economic viability.
- Only 15-25% of vehicle kilometers travelled is commercial traffic but takes up 20-40% of road space and causes 20-40% of all CO_2 emission.
- Freight vehicles account for almost 40% share of total metropolitan vehicles in India.
- With rapid urbanization volume of urban freight will continue to grow.
- For a city the size of Delhi (15 million) it is Rs. 4500,000 trucks trips per day and Rs. 450,000,000 tons of goods haulage every year.
- There is a problem of intermixing of local and regional traffic.

- The need is to plan for controlled growth in freight traffic movement else system may fall.

Key Issues

- Indian cities need to prepare and plan for the expected growth of urban freight movement.
- Need for relocation of whole sale markets and shifting of truck terminals on the periphery of city.
- New rail transport terminals may be developed in metro cities.
- Goods terminals may be developed on the periphery of the city and there should not be delivery of goods during the peak periods.
- A strategic approach is required for the goods traffic taking into consideration the requirements of the stakeholders, availability and future requirement of goods traffic infrastructure, impact of urban freight transport so that cities function efficiently.

Moderator making presentation

View of Discussion in the Round Table

Round Table 9: – National Urban Transport Policy

In 2006, National Urban Transport policy was formulated and circulated to the state governments by MoUD. Subsequently, several other policy recommendations have also been enunciated. The Round Table Discussion focused on the status of NUTP objectives and its impact on formulation of urban transportation plans and projects as well as the current needs and requirements of the Indian cities, the outreach and the process of implementation of the NUTP

Chair:-	Mr. O. P. Agarwal, Advisor - World Bank
Co-Chair:-	Mr. S. K. Lohia, Ex-OSD (UT) - MoUD
Presenter:-	Ms. Kanika Kalra, Urban Transport Expert - IUT
Rapporteur:-	Ms. Sanskriti Menon

Highlights of Discussion

- Out of the 16 recommendations made by the Working Group on Urban Transport for 12th Five Year Plan and NTDPC, only 6 recommendations are presently covered in NUTP-2006.
- Review of NUTP by IUT reveals that almost 50% of the city officials are not aware of the NUTP provisions even after 7 year of its launching.
- City officials are finding it difficult to allocate road space on a more equitable basis specifically for bicycle tracks.
- City authorities also face difficulty in having in-house transport planners, implementing innovative financing mechanism, use of cleaner technologies and collaboration with private sector for improvement of urban transport.
- Urban Transport Policy is complex issue involving land use, environment, health, affordability, livelihoods, technology, engineering, economics, finance, politics, human behaviour, disability, gender, terrain, safety and energy use.

Key Issues

- Provision may be made in NUTP for universal accessibility, road safety, regional and sub-regional transport, intelligent transport system, models for IPT and environmental issues in urban transport.
- Vision and approach in NUTP should be clearly defined and the performance of urban transport should be linked with indicators and service level benchmarks.
- Concept of TOD and role of IPT and NMT should be clearly explained in NUTP.

- Freight traffic issues should be elaborated and parking be included as demand management measures in NUTP.
- Role of UMTA should be clearly defined in NUTP.
- It should be a sound policy indicating holistic solutions.
- Policy should indicate the responsibility of implementation at various levels of Government from Centre to local authorities and among various sectors of development.

Panelist on the Dais

Co-Chair Addressing the Session

Round Table 10: – Barriers to Implementing TOD

While transit-oriented development has been embraced as a strategy to address a wide range of planning objectives, from minimizing automobile dependence to improving quality of life.There has been almost no assessment of the practices that have resulted in the actual development of TOD. It is found that transit agencies have largely underappreciated ability to overcome the land assembly and project financing barriers that have prevented the development of TOD projects. Since they provide a means from converting capital investment into positive operating returns, the transit agencies have capital bias in funding. The National Urban Transport Policy (NUTP), 2006 emphasizes the need for efficient public transport along with an integrated land use-transport policy. Although Indian cities are investing in mass transportation systems, transport planning is still disjointed from land use and is essentially car oriented. Discussions focused on such barriers for development of TOD including regulatory measures.

Chair:-	Mr. Mukund Kumar Sinha, OSD (UT) - MoUD
Co-Chair:-	Mr. Mrinalkant Tripathi, Director (UT) - MoUD
Presenter:-	Mr. Ashok Bhattacharjee, UTTIPEC-Delhi - Delhi Development Authority
Rapporteur:-	Ms. Laasya Bhagavat, ICLEI

Highlights of Discussion

- At policy level of TOD, mixed use zones are required to be incorporated in the Master Plan / Zonal Plan.
- Similarly, development control norms/regulations are also required to be incorporated in the Master Plan / Zonal Plan.
- Notified land Pooling Policy in Delhi, as a land delivery system, should be made applicable for TOD influence zone area.
- At Planning level, TOD influence zone is to be shown on GIS based map.
- TOD influence zone is to be superimposed on the Zonal Development Plan.
- Adequate manpower is required for preparation of influence zone plans for all notified corridors in Delhi.
- Stakeholders should be taken on board for expeditions development in TOD zone.
- Single window clearance for planning permission and building permission be given in TOD influence zone area.

Key Issues

- Demarcation of TOD influence zone on Master Plan / Zonal Plan of the city should be taken up on priority specifically GIS based map / Plan.
- Development control norms and regulation need to be incorporated in the Master Plan / Zonal Plan and zoning regulations.
- All the stakeholders have to be taken on board for identification of TOD zone in the city and for expeditious development in TOD influence zone.
- Regular consultation should be held on various implementation related issues with the concerned authorities and stakeholders.

Session Chair & Moderator

View of Round Table Discussion

Round Table 11:– Planning and Design for Sustainable Urban Mobility

Urban transport systems worldwide are faced with a multitude of challenges. Among the most visible of these are the traffic gridlocks experienced on city roads and highways all over the world. The prescribed solution to transport problems in most cities has thus been to build more infrastructures for cars, with a limited number of cities improving public transport systems in a sustainable manner. However, a number of challenges faced by urban transport systems – such as greenhouse gas emissions, noise and air pollution and road traffic accidents – do not necessarily get solved by the construction of new road infrastructure. The Round Table Discussion focused on providing some thought-provoking insights and policy recommendations on how to plan and design sustainable urban mobility systems and the provision for the available planning instruments and development control norms.

Chair:-	Mr. S. K. Lohia, Ex-OSD (UT) - MoUD
Co-Chair:-	Mr. Pireh Otieno, UN Habitat
Presenter:-	Mr. Cornie Huizenga, Joint Convener - SLoCaT
Rapporteur:-	Mr. Utit Ratna, TCPO

Highlights of Discussion

- 60% of global population is expected to be in urban areas by 2030.
- Currently there are 825 million passenger cars globally and projected to increase to 2.1 billion by 2050.
- In many countries motorised 2 wheelers outnumber cars.
- Car dependent development lead to:
    - Urban sprawl;
    - Air and noise pollution;
    - Climate change;
    - Road traffic accidents;
    - Congestion; and
    - Community severance.
- Globally, 37 % of all urban trips are made by foot or bicycle.
- Model share of formal public transport is declining globally.
- Goods transport accounts for 10-15% of vehicle kilometers travelled in urban areas, 2–5% of the urban employment and 3-5% of urban land use.

- Density, diversity, design, destination accessibility and distance to public transport influence the need for travel.

Key Issues

- Sustainable urban mobility should consider accessibility, affordability, availability and acceptability.
- Good governance, predictable and sustainable financial arrangements and public awareness are to be the key requirements of sustainable urban mobility systems.

Moderator making presentation

Round Table 12:– Transport, Energy & Urban Environment

Transportation systems are linked with a wide range of environmental considerations at all geographical scales, from global to local. These environmental impacts are related to the transport modes, energy supply systems, emissions and infrastructures over which they operate. While consuming large amount of energy, especially oil, vehicles also emit numerous pollutants such as carbon dioxide, nitrogen oxide and noise. Transport infrastructures have also damaged many ecological systems. Several of the environmental impacts of transport systems have been externalized, implying that the benefits of mobility are realized by a few while the costs are borne by the whole society. The spatial structure of economic activities, notably land use, is increasingly linked with environmental impacts. The sustainability of transport systems has become one core issues in the provision of mobility. All these issues were deliberated in this session to suggest solution to reduce the impact of transport on ecology and environment.

Chair:-	Mr. Cornie Huizenga, Joint Convener - SLoCaT
Co-Chair:-	Mr. Sandeep Garg
Presenter:-	Ms. Anumita Roy Choudhary Executive Director, Centre for Science and Environment
Rapporteur:-	Mr. Vedant Goel, GIZ

Highlights of Discussion

- Common goals related to transport, energy and environment in urban areas need to be aligned.
- The important question is how to develop a road map for changing existing mobility pattern.
- How to internalize the available environmental resources for devising the urban transport strategy.

Key Issues

- There is need for uplifting the individual concern so as to have definite voice to pressurize local policy makers.
- Inter-disciplinary approach is necessary to balance the transport, energy and environment issues.

Moderator making presentation

Chair and Moderator on the Dais

Round Table 13: – Security of Public Transport

Public transport security refers to measures taken by a mass transit system to keep its passengers and employees safe, to protect the carrier's equipment, and to make sure other violations do not occur. Public transport security has become a major issue around the world since the September 11attack, and especially the 2004 Madrid train bombings. Therefore, the Round Table focused on measures like enforcement of various rules and regulations, human and video surveillance, deployment of a transit police force, and other techniques in this regard.

Chair:-	Mr. Taj Hasan, Special Commissioner of Police (Traffic) Delhi
Co-Chair:-	Mr. A. K. Gupta, Chief Engineer (Planning) - DMRC
Presenter:-	Mr. T. Shiva kumar - G.M. (Operations), Chennai Metro

Highlights of Discussion

- Security of public transportation includes both security of transport infrastructure and services and security of the passengers using transport service.
- A good Public Transport Systems has to:
  - provide quick transit;
  - offer frequent services;
  - be affordable;
  - Provide safe transit; and
  - Provide secure environment.
- Human resources, procedures and technology are the three important components of security in public transport.

Anchor posing Question for Audience Poll

Key Issues

- ❖ Security should be considered in four distinct phases viz prevention, preparedness, response and recovery.
- ❖ Any security measure must be designed to quickly handle the large number of users and should be proportionate to the risk.

Panelist on the Dais

G. Audience Opinion Poll at UMI-2013

For the First time, a new event was introduced in UMI-2013. In all the Panel Discussions, Technical Sessions, Round Table Discussions 3-4 standard questions related to theme and sub-theme of each session were posed to the audience at the end of the discussions in each session to seek their opinion. Audience present in the hall responded through voting meters and the compiled results were displayed on the screen immediately. Questions, where majority of the participants i.e. more than 50% agreed are listed below:-

S.No.	Question	Yes/No	Percentage View (%)
	Inclusive Transport		
1	Is urban transport system inclusive today?	No	89
2	Do planners make conscious efforts for inclusive transport planning?	No	65
3	Do you think the current legislations, norms and standards, and guidelines, provide for enough bindings for the transport infrastructure providers to provide for the needs of the commuter categories like physically challenged, elderly, women, etc.?	No	67
4	Will making investments in inclusive transport be helpful?	Yes	87
5	Can transport improve inclusiveness of the society?	Yes	70
	Urban Transport Institution		
5	Is lack of a dedicated agency for urban transport the cause for poor urban mobility?	Yes	77
6	Do you think an umbrella transport authority at city level like UMTAs cannot play an effective role until adequate financial powers are given to them?	Yes	80
7	Should the dedicated agency be independent of existing agencies?	No	50
8	Is there a need for setting up a state land Urban Transport Authority also?	Yes	72
Role of Transport in Transforming cities			
9	Can transport improve livability in cities?	Yes	91
10	Can transport improve the economic potential of a city?	Yes	82
	Intelligent Transport System		
12	Do you think ITS can solve transport issues like traffic congestion, enforcement, parking problems, pollution, etc. in Indian cities?	Yes	83
13	Is ITS being used sufficiently in managing urban transport in Indian cities?	No	91
14	Do you think, ITS is a cost-effective solution to solve urban transport problems?	Yes	73
15	Do you think transport authorities/providers have enough capacity to enforce/implement/plan ITS	No	65

S.No.	Question	Yes/No	Percentage View (%)
	projects?		
Innovative Financing Mechanism			
16	Do you think recovering urban transport infrastructure investment by monetizing land value, increasing FSI is feasible option for large Indian cities?	Yes	66
17	Do you think dedicated levies and the tax exemptions the best way of financing?	No	50
18	Do you think fare fixation mechanism followed by public transport authorities in Indian cities is robust?	No	63
Rail Transit System – Alternate Modes			
19	Do you think promoting capital intensive rail based transport systems, like, metro rail etc., are an appropriate choice for cities with population less than 4 million (cities other than mega cities)?	No	50
20	Do you think LRT can be a cost effective transport system for Indian cities (As compared to BRTS/metro rail system)?	No	55
21	Do you think monorail system could serve Indian cities well?	Yes	55
22	Do you think sub-urban rail services should be promoted in a big way?	Yes	92
Managing Parking			
23	Do you think managing parking is the most important component to address urban transport issues in Indian cities?	Yes	56
24	Do you think parking pricing should be reflective of the existing land prices?	Yes	63
25	Do you think park and ride facilities should be encouraged more as compared to feeder services for public transport?	Yes, No	Yes-49, No-47
26	Do you think transport departments in Indian cities have enough capacity to undertake effective parking management solutions?	Yes	65
Transit Innovation			
27	Do you think managing informal IPT services can be an effective solution to address transport issues especially in small and medium size towns?	Yes	77
28	Do you think the local authorities have enough capacity to undertake effective transit innovations?	No	70
29	Given that NUTP & JNNURM emphasize mostly on developing Mass/Public transport systems in Indian cities, do you think that there is a need for a stronger rhetoric to bring improvement in IPT systems?	Yes	79
Travel Demand Management			
30	Do you think TDM strategies would be more effective than transport supply measures in addressing urban transport issues in Indian cities?	Yes	81
31	Do you think there is enough awareness about the	No	78

S.No.	Question	Yes/No	Percentage View (%)
	usefulness of TDM measures with the transport planners/transport providers/local government, in Indian cities?		
32	One of the important components for success of congestion charging is public confidence and support. The same was also one of the reasons for failure of Hong Kong's congestion charging measure. Do you think congestion charging can be successfully implemented in Indian cities?	No	86
33	Do you think that NUTP and financing measures like JNNURM should encourage cities to adopt TDM solutions?	Yes	93
Buses For All			
34	Do you think Indian cities are taking enough measures to develop standard bus services?	No	74
35	Do you think developing seamless line haul and feeder bus network is an important measure to encourage people to use standard bus services?	Yes	87
36	Do you think BRTS in cities with population less than 1 million is an effective solution?	Yes	77
37	Do you think transport authorities have enough capacity to plan for standard bus services?	No	80
Eco – Mobility in Cities			
38	Do you think urban planning authorities in Indian cities have enough awareness about developing eco mobility solutions for their cities?	No	71
39	Do you think cities have enough capacity to develop eco mobility solutions?	Yes	61
40	Do you think there is a need for stronger rhetoric through policy and financial measures to encourage cities to take up eco mobility solutions?	Yes	82
41	Do you think investments in urban transport should be linked to the extent of environment -friendliness of the transport solutions that are going to be adopted by the cities?	Yes	79
Pedestrian Safety in Indian Cities			
42	Do you think roads in Indian cities are safe for pedestrians?	No	91
43	Have the cities provided equitable road space for all road users?	No	94
44	Is there enough provisions in the planning and development laws for pedestrian safety on roads?	No	69
	Modernising City Bus Services		
45	Do you think the modal share of public transport in Indian cities is declining?	Yes	72
46	Do you think modernization of buses is necessary to increase its patronage?	yes	83
47	Do you think financing support from central/state government for improvement of buses is sufficient?	No	86

S.No.	Question	Yes/No	Percentage View (%)
CMP Toolkit			
48	Do you think Comprehensive Mobility Plan prepared so far have given adequate attention to Public Transport and Non - Motorized transport in Cities?	No	53
49	Is it necessary to provide statutory backing to Comprehensive Mobility Plan?	Yes	92
50	Should the Comprehensive Mobility Plan be an integral part of Master Plan?	Yes	74
Service Level Benchmarks			
51	Do you think Service Level Benchmarks are sufficient indicators to assess the current situation of urban transport environment?	Yes	72
52	Is there any mechanism at city level to collect and compile the data on regular basis required for Service Level Benchmarks?	Yes	50
53	Is there any need to have additional parameters and indicators in Service Level Benchmarks?	Yes	70
54	Do you think there is adequate capacity in cities to implement Service Level Benchmarks concept?	No	76
Access to Public Space			
55	Do you think public spaces in cities are easily accessible?	No	93
56	Are the public spaces safe for all sections and genders in the cities?	No	90
57	Are there enough pedestrian friendly streets?	No	92
Fuel Efficiency And Emission For Buses			
58	Do you think enough measures are being taken to lessen the traffic vehicular emissions?	No	97
59	Has adequate awareness been created for the use of Green fuel technology?	No	81
60	Are there any incentives available to bus operators to improve fuel efficiency?	No	67
61	Have the city authorities capacity to capture the required data for various fuel consumption?	No	62
Model Bus Agreement on Gross Cost Contract			
62	Is there sufficient awareness for Model Bus Operators Agreement?	No	73
63	Do you think Net cost contract is better for bus operators?	No	65
64	Should the private sector involvement in bus operation be promoted?	Yes	90
Freight Management			
65	Do you think Comprehensive Mobility Plans have paid adequate attention to Freight Management in cities?	No	80
66	Are there sufficient freight nodes, hubs and other logistics development in Indian cities?	No	79
67	Do you agree with the regulatory measures imposed for the freight movement within cities particularly	Yes	68

S.No.	Question	Yes/No	Percentage View (%)
	during peak hours?		
National Urban Transport Policy			
68	Do you think that enough awareness has been created about NUTP?	No	75
69	Do you think sufficient priority is being given to the movement of people than vehicles in Indian cities?	No	86
70	Has NUTP created any impact on formulation of urban transportation plan in Indian cities?	Yes	51
Transit Oriented Development			
71	TOD is pre – requisite for improving the efficiency and viability of Public Transport System. Do you think enough steps are being taken in Indian cities for TOD?	No	73
72	Do you think in existing cities implementation of the concept of TOD is difficult?	Yes	52
73	Are there sufficient regulatory measures available in the current Planning Legislation and Development control norms for TOD?	No	65
Planning and Design for Sustainable Urban Mobility			
74	Do you think Planning Instruments like Master Plan, Transport Plan, Zonal Plan or Local Area Plan etc. have sufficient provisions for Sustainable Urban Mobility?	No	69
75	Sustainable Transportation is one of the major building blocks of sustainable development. Do you think enough step are being taken by the City Planning and Development Authorities in this regard?	No	86
76	Do you think with rapid urbanization and fast economic growth the priority should be given to Sustainable Urban Mobility?	Yes	91
	Transport Energy and Environment		
77	Do you think pollution is increasing with the present urban transport system?	Yes	100
78	Are there enough regulatory measures to reduce green house gas emissions from transport?	No	64
79	Do you think transport system can improve environment quality?	Yes	93
Security of Public Transport			
80	Is the public transport safe and secure for all sections and genders?	No	93
81	Are there enough regulatory measures for improving security in urban transport?	Yes, No	Yes-47, No-41
82	Do you think there is a need for innovative technology for improving security system in urban transportation?	Yes	94

H. Leaders Forum

Highlights

Under the leaders forum, the projects and studies assigned to the officers of the state governments as part of the leaders Programme in Urban Transport Planning and Management of the ministry of Urban Development, Govt. of India and the World Bank were reviewed by the expert reviewers. The programme was organised by the Centre of Excellence in Urban Transport, CEPT University.Officers associated with the projects and studies made presentation on the projects in terms of structure of the project, objectives, scope and limitations, current status, interim suggestions and way forward for further action on the project. Four Leaders Forums were organized. Chairpersons and reviewers in each Leaders Forum were as follows.

1)	**Chair:-**	Mr. S. K. Lohia, Ex. OSD (UT) - MoUD
	Reviewers:-	Mr. Mohinder Singh, LTA – Singapore Mr. K. Mukundan, CEPT University Ms. Manjiri Akalkotar, CEPT University Mr. Gautam Patel Mr. Vivek Ogra Mr. A.S. Lakra Prof. Sevaram, SPA Delhi
	Rapporteur:-	Mr. Khelan Modi Mr. Vyush Patel
2)	**Chair:-**	Mr. M. Ramachandran Ex. Secretary, Urban Development, MoUD
	Reviewers:-	Mr. B. I. Singal, DG, IUT Prof. Shivanand Swamy, CEPT Ms. Nupur Gupta, World Bank Mr. Abhijit Lokre, CEPT MS. Shalini Sinha, CEPT Mr. Laghu Prashar, UMTC Prof. Sanjay Gupta, SPA Delhi
	Rapporteur:-	Ms. Sungdilmuchin Ms. Prutha Shah
3)	**Chair:-**	Mr. O. P. Agarwal, Sr. Advisor - World Bank
	Reviewers:-	Ms. Shalini Sinha, CEPT Ms. Manjiri Akalkotkar, CEPT Mr. Vivek Ogra Mr. A. S. Lakra Prof. Sevaram, SPA

	Rapporteur:-	Ms. Dhwani Shah Ms. Arunika Karmakar
4)	**Chair:-**	Mr. S. K. Lohia, Ex. OSD (UT) - MoUD
	Reviewers:-	Mr. Abjijit Lokre, CEPT Mr. B. I. Singal, DG, IUT Ms. Nupur Gupta, World Bank Mr. Vijay Andkat, EMBARQ Mr. I. C. Sharma, NMP, SUTP Prof. Sanjay Gupta, SPA
	Rapporteur:-	Mr. Aanan Sutaria Ms. Reema Prajapati

The following projects and studies were presented in the forum conducted during the conference.

1. Creation of Pedestrian Friendly zone in Aminabad Market Area, Lucknow.
2. Integration of Feeder Services with BRTS Corridor – Mumbai – Pune Road.
3. Public Transport (Bus)and NMT Accessibility Plan for the Historic Core of Bangalore city.
4. Institutional Re-structuring for integrated Planning and Management of Public Transport Systems in Jaipur.
5. Integrated Multi Modal Public Transport Hub at Central Business District – Ahmedabad.
6. Multi Modal Integration of Bus Services with sub-urban Trains of Mira Bhayander.
7. Cleaning the Clutter – Standardisation of Advertisements and Signages - Case study Surat BRTS.
8. Option for Sustainable Urban Mobility for Aizawl City-with special reference to Corridor Management along the Grand Trunk Route.
9. Improving Access at Entry and Exit to Charbagh Railway Station, Lucknow.
10. Auto Scheduling of Mysore City Transport.
11. Methodology for Setting, Regulating and Collecting integrated Public Transport Fare for Public Transport in Twin Cities of Gandhinagar and Ahmedabad.
12. Operational Manual of Intelligent Transport System for Jaipur Bus, Jaipur.
13. How to Expend Public Transportation in Rajkot city.
14. Parking Strategy for the Walled City of Jaipur.
15. Development of City Transport Network and Infrastructure along with Construction of New Ring Road for Greater Berhampur in the State of Odisha.

View of the Leaders Forum

I. Research symposium

Introduction

The fourth research symposium on urban transport was held on 04th& 05thof December, 2013 at the 6th Urban Mobility India Conference and Exhibition 2013 at the Manekshaw Centre, New Delhi. The symposium provided a platform to highlight the current research carried out by academia and research institutes in urban transport, especially by young researchers, in their post graduate and Ph.D programs. The purpose was to:

- Encourage young researchers working on various facets of urban transport and provide an opportunity for networking; and
- Improve the quality of research through peer review process, and contribute towards database compiled by the Institute of Urban Transport, New Delhi to identify the gaps for future research funding.

Young researchers (undergraduate, postgraduate and Ph.D level students) working in the area of urban transport were invited to submit abstracts based on the work carried out by them as part of their academic/research work.

Call for Papers and Selection

The fourth research symposium on urban transport was coordinated by Department of Urban Transport, School of Planning and Architecture New Delhi under the aegis of Ministry of Urban Development. Young researchers working in the areas of urban transport were invited to submit abstracts on any of the following themes:

1. Mobility Behaviour and Management
2. Public Transport Planning
3. Traffic Behaviour and Capacity Assessment
4. ITS and Technology in Public Transport
5. Land use Transport Interaction
6. Pedestrian Behaviour
7. Institutional Research
8. Bicycle and Pedestrian Infrastructure

Extended abstracts not exceeding 1000 words, clearly stating the objective of the paper, key results and accomplishments, the significance and the advancement over previous work were invited for review following a given timeline. Papers were selected based on their originality, timeliness, significance, relevance, and clarity of presentation.

It was notified that submission of a paper should be regarded as a commitment that, should the paper be accepted, at least one of the authors will register and attend the conference to present the work.

Each abstract was assigned to review by the Reviewers/Members of Technical Committee not affiliated to author's institution. The reviews were conducted online based on double-blind review. The review was carried out objectively based on the following four criteria, each on scale of 1 (min) to 5 (max) marks:-

- Clarity
- Originality
- Innovation
- Usefulness

Thus each reviewer could award a maximum of 20 marks (4×5=20); each abstract was assessed for a maximum of 60 (20×3=60) marks. The abstracts were arranged in descending order based on the marks obtained and first 33 abstracts were chosen for the paper presentation, with an aim to give exposure to maximum numbers of young researchers at the country's highest level conference on urban transport.

In addition to the objective assessment, the reviewers also gave their valuable comments for improvement of the quality of the abstracts, which were conveyed to the authors along with the acceptance note and further instructions for the submission of papers. The list of authors for paper presentation is given in the following section.

Proceedings of Research Symposium

Presentations were made in 8 Research Symposia chaired by an expert member and judged by jury. Name of chair, Co-Chair, jury and Rapporteur are given in the programme (Annexure-I). Summary of the presentation made in each Research Symposium is as under:-

Research Symposium 1: Mobility Behaviour and Management

Chair – Dr. Sewa Ram, SPA - Delhi	
Author / Presenter	**Institution**
Tarun Songra	SPA – Delhi
Sandeep Kumar Prusthy	NITK – Surathkal
Nisha Tripathi	IIFM – Bhopal
Anvi Maniar	CEPT – Ahmedabad

Summary

In this session four papers were presented by the authors covering the following aspects related to mobility behavior and management.

1. Estimation of Capacity of inter urban expressway – case study Delhi – Gurgaon expressway.
2. Evaluation of transportation infrastructure management strategies using microscopic traffic simulation.
3. Where the roads are without congestion and the environment is healthy: A road to sustainable urban mobility.
4. Impact of movement of trucks in urban areas: A case of Ahmedabad city.

Research Symposium 2: Public Transport Planning

Chair – Dr. Sanjay Gupta, SPA - Delhi	
Author / Presenter	**Institution**
Udit Jain	SPA – Delhi
Dakshayini R. Patil	BMS – Bangalore
Ankit Kathuria	SPA – Delhi
Jainal Shah	CEPT – Ahmedabad

Summary

The Following 4 papers were presented related to Public Transport planning.

1. Benchmarking of personal rapid transit system (Operation and financial feasibility dynamic model)
2. Accessibility to bus stops for senior citizens in the urban neighborhoods: An overview of best practices.
3. Intercity mode choice modeling using soft computing techniques.
4. Feasibility of park and ride systems in Indian cities.

Research Symposium 3: Traffic Behaviour and Capacity Assessment.

Chair – Dr. Satish Chandra, IIT – Roorkee	
Author / Presenter	**Institution**
Naveen Sharma	SPA – Delhi
Mayank Dubey	SPA – Delhi
Sanjay Radhakrishnan	IIT – Chennai
Thomas H	IIT – Chennai

Summary

Four papers were presented covering traffic behavior and capacity assessment aspects.

1. Estimation of capacity for multilane divided inter urban highways using videography technique of data collection.
2. Capacity of weaving section on urban roads.
3. Heterogeneous traffic flow discharge at signalized intersections – Effect of long cycle times.
4. Queue length and delay estimation at signalized intersections using detector data.

Research Symposium 4: ITS and Technology in Public Transport.

Chair – Prof. Shivanand Swamy, CEPT – Ahmedabad	
Author / Presenter	**Institution**
Rakesh Behera P. Sakhi Akshaya B. Arvindh Mansha Swami	IIT – Chennai Anand Institute of HigherTechnology,Chennai Anand Institute of Higher Technology, Chennai IIT – Roorkee

Summary

The following 4 papers were presented related to the ITS and Technology in Public Transport.

1. Data analytics based dynamic passenger information system.
2. Usage of Android application in public transport system.
3. An approach to enhance the safety of passengers using mechanically controlled doors in city buses.
4. Efficiency assessment of multimodal transportation.

Research Symposium 5: Land Use Transport Interaction

Chair – Dr. K.V.K.Rao, IIT – Bombay	
Author / Presenter	**Institution**
Swati Sharma Yash Kumar Mittal Sairam Dasari Vineesh Dass K.	SPA – Delhi SPA – Delhi SPA – Delhi SPA – Vijaywada

Summary

The following 4 papers were presented on the above subject.

1. Synchronizing land use and transport: A step towards an efficient city.
2. Land assessment, assembly and differential taxation models for re-densification of transit oriented corridors.
3. Application of fractal analysis for evaluation of road network in urban areas.
4. Accessibility characteristics of Vijaywada with respect to time and distance as parameters.

Research Symposium 6: Pedestrian Behavior

Chair – Dr. P. K. Sarkar, SPA – Delhi	
Author / Presenter	**Institution**
Vijay Dhale	BITS – Pilani
Chirag Chutani	SPA – Delhi
Shalini Rankavat	IIT – Delhi
Mariya Khatoon	IIT – Delhi

Summary

Following four papers were presented related to pedestrian behavior.

1. Empirical study of pedestrian flow characteristics in India.
2. Level of services for pedestrian at uncontrolled mid-block crossing.
3. Pedestrian preferences for pedestrian facilities in Delhi.
4. Pedestrian crossing behavior at different types of crosswalks.

Research Symposium 7: Institutional Research

Chair – Dr. P. K. Sikdar – ICT	
Author / Presenter	**Institution**
Dr. S. N. Mahendra	IIT – Varanasi
Madhu. S.	Centre for Public Policy Research
Pawan Mulukutla	Embarq
Jitin Raj	IIT – Chennai
Dr. Sewa Ram	SPA – Delhi

Summary

Following 5 papers were presented by the institutions on the research carried out on topical areas of interest.

1. Linear induction motor based passenger conveyor system for pedestrian along circular route.
2. The need for integrating intermediate para transit system in India – Connecting the last mile.
3. Expanding the public transport network through a feeder bus system – challenges and need.
4. Analysis of the effect of error in automated sensor data in end application.
5. Mobility characteristics of slum dwellers.

Research Symposium 8: Bicycle and Pedestrian Infrastructure.

Chair – Dr. Dr. Anvita Arora – iTRANS	
Author / Presenter	**Institution**
Vivek Kumar Yadav Liju Mathew Dr. Mukti Advani Prakash Chand Arya	SPA – Delhi Voyant Solutions Pvt. Ltd. Gurgaon CSIR – Delhi SPA – Delhi

Summary

Four Papers were presented on the above subject.

1. Planning for environmental friendly transport as a feeder to metro.
2. Planning for bicycle infrastructure – A Case of Gurgaon City.
3. Behavioral analysis of pedestrian in 'space sharing' traffic scenario.
4. Planning of sky walk in an institutional area – case study ITO area (Indraprastha) Delhi.

An Award Committee Comprising of Jury members of the Research Symposium selected three best papers which were given citation and awards at theValedictory Session of the UMI conference

First prize was awarded to Ms. Mansha Swami IIT Roorkee for the paper on "Efficiency Assessment of Multimodal Transportation" authored by Research Scholar Ms. Mansha Swami & Dr. M Parida, Professor, IIT Roorkee.

Second prize was awarded to Ms. Dakshayini R patil , B M S College of Engineering, Bangalore for the paper on "Accessibility to Bus-Stops for Senior Citizens in the Urban Neighborhoods" authored by Ms. Dakshayini R patil & Dr. Mamatha P Raj, B M S College of Engineering, Bangalore.

Third prize was awarded to Mr. Mayank Dubey, SPA Delhi for the paper on"Capacity of Weaving Section on Urban Roads" authored by Mayank Dubey, Dr. Sewa Ram, Associate professor and HOD, Transport Planning, SPA Delhi & D Sanyal Delhi.

View of Participations in the Research Symposium






J. Exhibition

The expo is a special feature of UMI Conference and Expo to disseminate and showcase the latest development in urban transport technology and systems, implementation of best transport projects, propagation 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,31 sponsors and 22 exhibitors (Annexure-III + IV) participated in the exhibition and exhibited their products, technology, projects and the transport systems for wider dissemination. The exhibition was inaugurated by Shri Kamal Nath Ji Hon'ble Minister for Urban Development and Parliament Affairs, Govt. of India on 3rd of December, 2014.Fifteenforeign companies participated in the expo and showcased their products and technologies. A large number of participants and invited guest visited the expo area. The latest technology particularly the modern buses and computer systems helping in traffic management were the special attraction. Exhibitors had a lot of specific queries from the participants to solve the urban transport problems in the respective cities.

On the whole the expo was received well both by the participants and other visitors. A glimpse of expo area clearly show the keen interest taken by the delegates in various pavilions of the exhibition.

Glimpses of Exhibition


THE MOVE


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K. Valedictory & Closing Session

In the Valedictory Session proceedings of the conference indicating the participation of delegates both national and international, presentation of technical and research papers and the key messages emerged out of the 4 day conference were presented by Mr. M. K. Sinha, Officer on Special Duty and ex-officio Jt. Secretary MoUD.

In his valedictory address, Dr. Sudhir Krishna, Secretary Urban Development highlighted the projected urban growth and need for making the cities livable providing mobility for all. Urban sprawl should be controlled and emphasis should be on public transport. Travel demand management should be given due considerations and approach for urban transport should be to avoid unnecessary trips / shift from personalized mode to public transport and improve technology in transport. He said UMI has come a long way to create awareness about the sustainable urban transport in India. He gave away the prizes for two best exhibits in the Expo and three best-prizes for the research papers.

Shri B. I. Singhal DG, IUT proposed a vote of thanks. It was informed that the UMI 2014 Conference will be held from 2-5 Dec, 2014 and themefor the conference will be Sustainable Transport for Sustainable Cities.

Participants in the Valedictory Session


C.K. Khaitan


Dr. O.P. Agarwal


Dr. O.P. Agarwal

Urban Mobility India Conference 2013 – Detailed Program

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar
Day 1 (3rd December, 2013) – 1630 onwards					
1630-17:30	**Inaugural Session**(Zorawar Hall) • Welcome Address by Shri M.K. Sinha, Officer on Special Duty & Ex Officio Joint Secretary, Ministry of Urban Development, GoI • Address by Dr Sudhir Krishna, Secretary, Ministry of Urban Development, GoI • Key note address - by Enrique Penalosa, President ITDP & Ex-Mayor, Bogota • Release of publications for Urban transport by Hon'ble Shri Kamal Nath, Minister of Urban Development& Parliamentary Affairs • Inaugural address by Hon'ble Shri Kamal Nath, Union Minister of Urban Development& Parliamentary Affairs • Vote of Thanks by Shri C.K. Khaitan, JS (UT), Ministry of Urban Development, GoI				
17:30-1800	**Inauguration of the Exhibition** by Hon'ble Shri Kamal Nath, Union Minister of Urban Development & Parliamentary Affairs				
1800-1900	**Sustainable Cities (Special Session)** – Presentation by Mr Enrique Penalosa, President ITDP & Ex-Mayor Bogota				
1900 onwar-ds	*Dinner Reception*				
Day 2 (4th December, 2013) – 1130 to 2000					
1130-1300	**Panel Discussion - Inclusive Transport** (Ashoka Hall) Chairperson –Mr Conrado, Heruela, UNEP Co-chair –Mr P.S. Kharola, MD, BMRCL Panelist – • Ms Anjalli Agarwal, Director, Samarthyam • Prof. Darshini Mahadevia, Dean, CEPT University • Mr Nalin Sinha, Director, ITDP, India • Mr Cornie Huizenga, Joint Convener, SLoCaT Partnership Rapporteur – Akshima Ghate, TERI				
1300-1430	*Lunch/ Visit to Exhibition*				
1430-1600	**Technical Session1A- Making Transit Oriented Development (TOD) Happen** Chairperson -Mr I.P. Gautam, VC, Ahmedabad Metro Rail Co-chair – Shri J.B. Kshirsagar, Chief TCPO Rapporteur –Ms Raina Singh, TERI	**Technical Session1B – Intelligent Transport System** Chairperson - Mr J. Satyanarayan, Secretary, Ministry of Communication & IT Co-chair – Taj Hassan, Special Commissioner of Police (Traffic), Delhi Police Rapporteur – MrSudhir Badami	**Round Table 1 – Pedestrian Safety in Indian Cities** Chairperson –Shri Nihal Chand Goel, MD, Jaipur Metro Rail Corporation Co-chair – Dr. R. N. Batta, Managing Director, Himachal Road State Transport Presenter – Dr Geetam Tiwari, Professor, IIT Delhi Rapporteur – MrShree Prakash	**Round Table 2 – Bus Karo: Modernizing City Bus Service** Chairperson – Mr Anjum Parwez, MD, BMTC Co-chair – Dr Sanjay Gupta, Professor, SPA Presenter – Mr Dario Hidalgo, EMBARQ Rapporteur –Shell	**Round Table 3 – Comprehensive Mobility Plan Toolkit** Chairperson – Mr B.I. SIngal, DG, IUT Co-chair – Mr R.K. Singh, Director, MouD Presenter – Mr Subhash Dhar, UNEP Rapporteur – Ms Deepti Jain, IIT Delhi
	Planning TOD in greenfield Development – Mr. Trevor	Traffic and Congestion Management - Dr Jason Chang,			

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar
	Mcintyre& Mr. BankimKalra IB I Group	Professor, Dept. of Civil Engineering, National Taiwan University			
	Implementing TOD - Dr Chris Hale, HOD Melbourne University	Planning for the development of ITS in Urban Settings – MrErik Campel, Senior Associate, Cambridge Systematics			
	TOD - a mechanism for Financing - Shri I.P. Gautam, VC, Ahmedabad Metro Rail	Public transport planning & data management – ShriManjunath Prasad, MD, KSRTC (Mysore)			
	TOD Experience of Delhi Metro Rail – Shri S.D. Sharma, Director (Business Development), DMRC	Intelligent Transport Management System in Urban Transport – MrK. Jayakishan, Executive Vice President, Strategy & Business Development, DIMTS			
1600-1630	*Tea, Coffee and Networking Break*				
1630-1800	**Technical Session2A – Innovative Financing Mechanisms** Chairperson - Mr G S Sandhu, Add. Chief Secretary, Government of Rajasthan Co-chair –Mr. Vishesh Gharpale, Municipal Commissioner, Bhopal Rapporteur – Mr. Sourabh, DULT	**Technical Session 2B – Rail Transit Systems - Alternate Modes** Chairperson - Mr S. Akimura, Vice President, JTPA Research institute Co-chair – MrSushilJaitly, Head of Systems Integration, India, Bombardier Transportation Rapporteur – MrRanjithParvathapuram, ICLEI	**Round Table 4 – Service Level Benchmarks** Chairperson – Dr Sudhir Krishna, Secretary, Ministry of Urban Development, GoI Co-chair – Shri S.K. Lohia, Ex-OSD (UT), Ministry of Urban Development, GoI Presenter – Prof. ShivanandSwamy, Executive Director, CEPT University Rapporteur – Ms Nimisha Pal	**Round Table 5 – Access to Public Spaces** Chairperson - ShriChetanVaidya, Director, SPA Co-chair – Shri S.K. Jagdhari, Vice President, IUT Presenter– MsShreyaGadapalli, ITDP Rapporteur – MsAnvitaArora, iTrans	**Round Table 6 – Fuel Efficiency & Emission Guidelines for Buses** Chairperson - Mr Ajay Mathur, DG, BEE Co-chair – MrConrado S. Heruela, UNEP Presenter – Sameera Kumar Anthapur, Transport Researcher, Clean Air Asia Presenter: Gaurav Bansal, Researcher, The International Council on Clean Transportation Rapporteur– Ms Shilpa Kharwal, Shakti Foundation
	Land as a resource - Shri P.S. Kharola, MD, Bangalore Metro	LRT - Mr Etienne Lhomet, Member, CODATU			

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar
	Urban Transport Fund - Mr G S Sandhu, Add. Chief Secretary, Government of Rajasthan	Japan's Urban Transport Policy and the New Transport System–Mr S. Akimura, Vice President, JTPA Research institute			
	Public Private Partnership in Urban Transport - MrCherian Thomas, IDFC				
	Pricing and fare fixation for public transport – Shri Anjum Parwez, MD, BMTC	Monorail Technology - Riyaz Rashid, Head of Sales & Business Development, Systems Integration, Asia-Pacific, Bombardier Transportation			
1800-1830	*Tea, Coffee &Networking Break*				
1830-2000	**Research Symposium1 - Mobility Behavior and Management** Chairperson –Dr. Sewaram, SPA Delhi Co-chair - Mr. Kinshuk Pal, Principal Consultant, IMaCS External Jury 1 - Mr Manfred Breithauft, Senior Transport Advisor, GIZ Rapporteur - Ms.Chidambara SPA Delhi.	**Research Symposium2 - Public Transport Planning** Chairperson - Dr. Sanjay Gupta, SPA Delhi Co-chair - External Jury 1 - Mr Dario Hidalgo, Embarq External Jury 2 - Dr Chris Hale, HOD Melbourne University Rapporteur – Mr Umang Jain EMBARQ	**Research Symposium3 - Traffic Behaviour and Capacity Assessment** Chairperson - Dr. Satish Chandra, IIT Roorkee Co-chair - Dr. S.Velmurugan, CSIR- CRRI External Jury 1 – Mr Alok Bansal, Consultant, CES External Jury 2 – Dr Dominik Schmid GIZ, Germany. Rapporteur – Mr Vivek Yadav	**Research Symposium4 - ITS and Technology in Public Transport** Chairperson - Prof. Shivanand Swamy, Executive Director, CEPT University Co-chair - Dr. Vinay Maitri, SPA Delhi External Jury 1– Mr Mohinder Singh LTA Singapore External Jury 2 - Dr Jason Chang, Professor, Dept. of Civil Engineering, National Taiwan University Rapporteur –Mr Pawan Dwivedi, IMaCS	**Round Table 7 - Model Bus Operators Agreement on gross Cost Contract** Chairperson – Shri S.K. Lohia, Ex-OSD (UT), Ministry of Urban Development, GoI Co-chair – Ms Suchi Sharma, MD, JCTSL Presenter – Mr Laghu Parashar, Senior Manager, UMTC Rapporteur – Mr Rohit Sharma, Sr. Officer, UMTC Ltd
	Estimation of Cpacity of Inter Urban Expressway- Case Study Delhi Gurgaon Expressway – TarunSongra,	Benchmarking of personal rapid transit system (dynamic model) – Udit Jain, Dr.P.K.Sarkar, AnupamVibhuti	Estimation of capacity for multi-lane divided inter-urban highways using videography technique of data collection – Naveen Sharma,	Data analytics based Dynamic Passenger Information System – RakeshBehera, Devarsh Kumar, LelithaVanajakshi	

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar
	Dr. Sewa Ram, Dr. L. R. Kadiyali, Dr. K. Ravindra		Dr. P.K. Sarkar, Dr. S. Velmurugan		
	Evaluation of Transportation Infrastructure Management Strategies Using Microscopic Traffic Simulation – Sandeep Kumar Prusty	Accessibility to bus-stops for senior citizens in the urban neighborhoods; an overview of best practices – Dakshayini R Patil Dr Mamatha P Raj	Capacity of weaving section on urban roads – MayankDubey, Dr. Sewaram, D. Sanyal	Usage of Android application in Public Transport System – P.Sakthi Akshaya, Janani Gopala krishnan	
	Where the Roads are without congestion and the Environment is healthy: A Road to sustainable Urban Mobility - NisthaTripathi	Intercity Mode Choice Modeling using Soft Computing – AnkitKathuria, Dr. P. K. Sarkar, Dr. ErrampalliMadhu	Heterogeneous traffic flow discharge at signalized intersections – Sanjay Radhakrishnan ,GitakrishnanRamadura.	An approach to enhance the safety of passengers using mechanically controlled doors in city buses – B Aravindh, A.Nilson, M.MohammedMydeen Aslam, S.Boopathi Raj	
	Impacts of movement of trucks in urban areas - A case of Ahmedabad city – AnviManiar, ShivanandSwamy	Feasibility of Park and Ride Systems in Indian Cities - Jainal Shah, ShaliniSinha	Queue length and delay estimation at signalized intersections using detector data – Thomas, H , S. P. Anusha , L. Vanajakshi and A. Sharma	Efficiency assessment of multimodal transportation – Mansha Swami, P. Phani Kumar	
Day 3 (5th December, 2013) – 0930 to 1800					
0930 - 1100	**Research Symposium 5 - Land Use Transport Interaction** Chairperson - Dr. K V K Rao, IIT Bombay External Jury 1 - Dr Hale, HOD, Melbourne University, Australia Rapporteur - Mr. S BhaskarGowd., SPA Delhi.	**Research Symposium 6 - Pedestrian Behavior** Chairperson - Dr. P.K. Sarkar, SPA Delhi Co-chair - Mr. Ashok Bhattacharya, UTTPEC External Jury 1 Mr Alok Bansal, Consultant, CES External Jury 2 - Mr Manfred Breithauft, Senior Transport Advisor, GIZ	**Research Symposium 7 - Institutional Research** Chairperson - Dr. P K Sikdar, ICT External Jury 1– Mr Mohinder Singh LTA Singapore External Jury 2- Dr Dominik Schmid, GIZ, Germany. Rapporteur –Ms Jagriti	**Research Symposium 8 - Bicycle and pedestrian Infrastructure** Chairperson - Dr. AnvitaArora, Director, iTRANS External Jury 1 - Mr Dario Hidalgo, Embarq Rapporteur - Dr. Mukthi Advani, CSIR-CRRI	**Leaders Forum** Introduction to Program & Organizers- Mr. O.P Agarwal, Senior Advisor, World Bank Current Status and about this Review- Prof. Shivanand Swamy, Executive Director, CEPT Address by Dr. Sudhir Krishna Secretary MoUD Rapporteur –Ms. SungdiImchin, Ms.Prutha Shah

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar	
		Rapporteur - Dr. Pawan Kumar TCPO				
	Synchronizing land use and transport: a Step towards an Efficient City – Swati Sharma	Empirical study of pedestrian flow characteristics in India – Vijay Dhale, ShriniwasArkatkar, Ashoke K Sarkar	Linear induction motor based passenger conveyor system for pedestrians along circular route – Dr. S. N. Mahendra, Ayan Das, Shailendra. N Jaiswal	Planning For Environmental Friendly Transport as A Feeder To Metro – Vivek Kumar Yadav, Dr. Sewa Ram, Dr. AnvitaArora	**Hall 5 - Talwar** Chairman: Mr. O.P Agarwal, Senior Advisor, World Bank Reviewers: Mr. AbhijitLokre, CEPT University , Mr. LaghuPrashar, Senior Manager, UMTC, Ms. ShaliniSinha, CEPT University Mr. SandeepGarg, Mr. A.S. Lakhra, Mr. IC Sharma, NPM, SUTP Rapporteur – Ms.AananSutaria, Ms. Nidhi Shah	**Hall 6 – Mayur** Chairman: Mr. M. Ramachandran, Ex Secretary, MoUD Reviewers: Prof. ShivanandSwamy, Executive Director, CEPT University Mr. Vijay Anadkat, EMRAQ Mr. Gautam Patel, Mr. K. Mukundan, CEPT University Ms. Nupur Gupta, World Bank Rapporteur –Ms. ReemaPrajapati&Ms. Shweta Moon
	Land assessment, assembly and differential taxation models for Re-densification of Transit Oriented Corridors – Yash Kumar Mittal, Bhavna Solanki	L.O.S. for Pedestrian at uncontrolled mid-block crossing – ChiragChutani, Dr. Sewaram, Dr. PurnimaParida	The need for integrating intermediate Para transit (IPT) system in India – Madhu.S	Planning for Bicycle Infrastructure - A case of Gurgaon City – Liju Mathew	Project number 1- Creation of Pedestrian Friendly Zone in Aminabad Market Area, Lucknow - Mr. Rajesh Kumar, Mr. Sunil Kumar Gupta&Mr. Manish Awasthi	Project number 12- Interoperable Fare Management System - Mr. Praveen Kumar P.
	Application of fractal analysis for evaluation of road network in urban areas – SairamDasari, Dr. Sanjay Gupta	Pedestrian Preferences for Pedestrian Facilities in Delhi – Shalini Rankavat, Dr. Geetam Tiwari, Nikita Singla	Expanding the Public Transport Network through Feeder Bus System-Challenges and Need – Pawan Mulukutla, Priyanka Vasudevan	Behavioral analysis of Pedestrians in 'space-sharing' traffic scenario. – Dr. Mukti Advani, Dr. Purnima Parida	Project number 4- Public Transport (Bus) Accessibility Plan for the historic core of Bangalore City - Mr. Murali T.V	Project number 16- Single Ticketing System for Public Transport in Twin Cities of Gandhinagar and Ahmedabad - Mr. Pranab Nanda
	Accessibility characteristics of Vijayawada with respect to time and distance as parameters. – Vineesh Das K, Rohit RP, Naina Gupta, BhaskarGowd S.	Pedestrian crossing behavior at different types of crosswalks – Mariya Khatoon, Dr. Geetam Tiwari, Dr. Niladri Chatterjee	Analysis of the effect of error in automated sensor data in end applications – JithinRaj, ShrikantFulari, LelithaVanajakshi Mobility characteristics of slum dwellers. –	Planning of Skywalk In an Institutional Area, Study Area: ITO, IndraprasthaNew Delhi – Prakash Chand Arya, Prof. Dr. P.K. Sarkar		Project number 13 - PRT (Personalized Rapid Transport) System for Shimla City - Mr. Rajesh Kashyap

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar	
			Dr. Sewa Ram, Bhaskar Gowd Sudagani			
1100-1130	*Tea, Coffee and Networking Break*					
1130-1300	**Panel Discussion – Urban Transport Institutions**(Ashoka Hall) Chairperson – Dr M. Ramachandran, Ex-Secretary, MoUD Co-Chair– Dr O.P. Agarwal, Advisor, World Bank Panelist – • Mohinder Singh, LTA Singapore • Dr Frederic Oladeinde, Technical Adviser and Head of Transport Planning Unit, LAMATA • DrS. Padam, Ex-Dean, ASCI • Mr S.K. Lohia, Ex-OSD (UT), Ministry of Urban Development, GoI Rapporteur – MsIshitaChauhan, World Bank					
1300-1430	*Lunch/ Visit to Exhibition*					
1430-1600	**Technical Session 3A – Managing Parking** Chairman – Shri. S. Regunathan, Ex-Chief Secretary, Delhi Co-chair – MrPuneetGoel, Transport Commissioner Delhi Rapporteur – MrSujitPatwardhan	**Technical Session 3B – Transit Innovations** Chairman – Shri Ashutosh A.T Pednekar, Collector, Udaipur Co-chair – ShriChandramauliShukla, MD, BCLL Rapporteur – MrAshok Datar	**Round Table 8 – Freight Management** Chairman – Shri. A.S. Bhal, Economic Advisor, MoUD Co-chair – Mr Adnan Rehman, Cambridge Systematics Presenter –Shri Anil Shukla, Addl. Commissioner of Police, Delhi Rapporteur – MrKartik Kumar, GIZ	**Round Table 9 – National Urban Transport Policy** Chairman – Dr O.P. Agarwal, Advisor, World Bank Co-chair – Shri S.K. Lohia, Ex-OSD (UT), Ministry of Urban Development, GoI Presenter – MsKanikaKalra, Urban transport Expert, IUT Rapporteur – MsSanskritiMenon	**Leaders Forum (Hall 6 – Talwar)** Chairman:Mr. S.K. Lohia, Ex-OSD(UT), MoUD Reviewers: MrMohinder Singh, Dean, LTA Singapore Mr. K. Mukundan, CEPT University Ms. ManjiriAkalkotkar, CEPT University MrGautam Patel, Mr. VivekOgra, Mr. A.S. Lakra, Prof. Sevaram, HOD, SPA Rapporteur –Mr. KhelanModi, Mr. Vyush Patel	**Leaders Forum (Hall 6 – Mayur)** Chairman:Mr. M Ramachandran, Ex Secretary, MoUD Reviewers: BI Singal, DG, IUT Prof Shivanand Swamy,ED, CEPt University Ms. Nupur Gupta, World Bank Mr. AbhijitLokre, CEPT University Ms. ShaliniSinha, CEPT UniversityMrLaghuPrashar, Senior Manager, UMTC Prof Sanjay Gupta, Prof. SPA Rapporteur – Ms.SungdiImchin, Ms.Prutha Shah
	Parking policy – Mr Manfred Breithauft, Senior Transport Advisor, GIZ	Transforming IPT through mini cabs – Shri Ashutosh A.T Pednekar, Collector, Udaipur			Project number 18- Strategy for Parking in the Walled City of Jaipur - Mr. Pradeep Kapoor	Project number 17 - Operation Manual of Intelligent Transport System (ITS) for Jaipur Bus in Jaipur - Ms. Shuchi Sharma & Ms. PreetiMathur
	Parking Technology - Mr. Deepak Darda,	Singapore example - Mohinder Singh, LTA Singapore			Project number 2- Integration of Feeder Services with BRTS	Project number 20- Signal Synchronization

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar	
	Associate Director, IBI Group				Corridor- Mumbai-Pune Road - Mr. Dnyandeo R. Jundhare & Mr. Shrikant S. Savane	using ATCS & Junction Development - Mr. Jitendra T. Mehta & Mr. Pranay Shah
	Rethinking Parking in Indian Cities – Ms Sulakshana Mahajan and Mr Pawan Mulukutla, MTSU	Bus Innovations in Small Cities - Mr B C Ramesh, Chief Mechanical Engineer, NEKRTC and Mr Basalingapa, Divisional Traffic Officer, NEKRTC			Project number 6- Comprehensive Local Area Transit Oriented Action Plan for Central Business District at Ashram Road, Ahmedabad – Ms Neela Munshi & MsDeepa Dave	Project number 8 - Standardization of Advertisements and Signages - Mr. Bharat S Shah & Mr. Mahesh kumar P Jaimalani
	Innovations in Urban Parking – Mr S. Ranganathan, VP- TSG, ACS Of India Pvt. Ltd.	The worldwide rise of Bus Rapid Transit - Mr Nicolas Doucet, Business Development Director, PTV AG and MrKarsten McFarland, Director Business Development, PTV group			Project number 7- Multi Model Integration of Bus Services With Sub-urban Trains of Mira-Bhainder - Mr. Vilas Dhage, Mr. DipakSawant& Mr. Sunil Kumar Garg	Project number 19- How to expand Public Transportation in Rajkot City - Mr. Ajay M Vegad
1600-1630	*Tea, Coffee and Networking Break*					
1630-1800	**Technical Session4A – Travel Demand Management** Chairman – Shri. Jagan Shah, Director, NIUA Co-chair – Mr Rajeev Malhotra, NCRPB Rapporteur – Mr Ranjit Gadgil	**Technical Session 4B – Buses for All** Chairman – Mr G.S. Sandhu, Addl. Chief Secretary, Government of Rajasthan Co-chair – Shri O.P. Gupta, MD, BEST Rapporteur – Mr Vidhyadhar Date	**Round Table 10 – Barriers to Implementing TOD** Chairman – Shri Mukund Kumar Sinha, OSD (UT), Ministry of Urban Development, GoI Co-chair – Shri Mrinalkant Tripati, Director (UT), Ministry of Urban Development Presenter- Shri Ashok Bhattacharjee, UTTIPEC	**Round Table 11 – Planning and Design for Sustainable Urban Mobility** Chairperson – Shri S.K. Lohia, Ex-OSD (UT), Ministry of Urban Development, GoI Co-chiar – PirehOtieno, UN-Habitat Presenter – MrCornie Huizenga, Joint Convener, SLoCaT Partnership Rapporteur – Udit Ratna, TCPO	**Leaders Forum (Hall 6 – Talwar)** Chairman: Mr. OP Agarwal, Senior Advisor, World Bank Reviewers: Ms. Shalini Sinha, CEPT University, Ms. Manjiri Akalkotkar, CEPT University Mr. VivekOgra, Mr A S Lakhra, Prof. Sevaram, HOD, SPA Rapporteur –Ms. Dhwani Shah, Ms. Arunika Karmakar	**Leaders Forum (Hall 6 – Mayur)** Chairman: Mr. S.K.Lohia, EX-OSD(UT), MoUD Reviewers: Mr. Abjijit Lokre, CEPT University Mr. BI Singal, DG, IUT Ms. Nupur Gupta, World Bank Mr. Vijay Andkat, EMBARQ Mr. IC Sharma, NMP, SUTP Prof. Sanjay Gupta, Professor, SPA Rapporteur –Ms. Aanan Sutaria & Ms. Reema Prajapati
	Cohesive policies for reducing need for travel - Prof. Shivanand Swamy, CEPT	Bus operations - Dr Frederic Oladeinde, Technical Adviser and Head of Transport Planning Unit, LAMATA	apporteur – Ms Laasya Bhagavatula, Manager, ICLEI		Project number 14 - Auto-scheduling of Mysore City Transport - Mr. V. Nagaraja	Project number 21- Preparatory Measures for Public Transport Mode for greater Berhampur in the state of Odisha - Mr. B. K. Behera & Dr. Ajit Kumar Mishra

Time (hrs)	Hall 1- Zorawar	Hall 2 - Ashoka	Hall 3 - Shamsher	Hall 4 - Taber	Hall 5 - Talwar	
	Congestion Charging - Dr Adnan Rahman, Cambridge Systematics	Accessibility for Public Transport – Mr Sandeep Gandhi, Director, Sandeep Gandhi & Associates			Project number 5- Institutional restructuring for integrated planning & management of public transport system in Jaipur - Mr. Sanjay Solanki, Mr. Vijay Kumar Gupta	Project number 15- Public Transport Connectivity between Railways and Bus stations in Thiruvananthapuram City - Mr. Anil Kumar. G.,Mr. P.M. Sharaf Muhammed
	Implementing TDM Measures – Dr Dominik Schmid, GIZ	Learning's from implementing BRT – Mr Chandramauli Shukla, MD, Bhopal City Link Limited			Project number 10 - Options for Sustainable urban mobility of Aizwal city - Mr. K. Lalthawmmawia,Mr. Vanlalmawia & Mr. Vanlalsawama	Project number 3 - Assessment of Performance of Feeder Bus Services to Delhi Metro - Dr. Pawan Kumar & Mr. Sudhir Mehta
					Project number 9 - Kohima:Integrated Corridor Improvement - Mr. Elias T. Lotha&Mr. Shikaho P. Yeptho	Project number 11- Access control of entry and exit of Charbagh Station - Mr.Yogesh Mohan, Mr.Kaushal Kumar& Mr.Ashutosh Kumar Singh
		Learnings from operating BRT – Mr Sandeep Soni, MD, AICTSL			Closing Remarks and next steps: Mr. S K Lohia, Ex-OSD (UT), MoUD and Mr. O.P. Agarwal, Senior Advisor, World Bank	

Day 4 (6th December, 2013) – 0930 to 1500

0930 - 1100	**Panel Discussion – Role of Transport in Transforming Cities**(Ashoka Hall) Chairperson – Smt. Naini Jayaseelan, Member Secretary, NCRPB Co-chair – Dr. O P Aggarwal, Advisor, World Bank Panelist • Mr Dario Hidalgo, EMBARQ • MrKe Fang, Lead Transport Specialist, World Bank • Mr K. Manjunath Prasad, KSRTC • Mr O.P. Gupta, MD, BEST Rapporteur – MrAshishRaoGhorpade, ICLEI
1100-1130	*Tea,coffee &Networking Break*

1130-1300	**Technical Session 5A – Intermediate Public Transport** Chairman – Shri K.K. Gandhi, Executive Director-Technical, SIAM	**Technical Session 5B – Eco Mobility in Cities** Chairman – MrC.K. Khaitan, Joint Secretary, MoUD Co-Chair – ShriAlok Mittal, Commissioner of Police, Gurgaon	**Round Table 12 – Transport, Energy & Urban Environment** Chairman – Mr Cornie Huizenga, Joint Convener, SLoCaT Partnership Presenter – Ms Anumita Roy	**Round Table 13 - Security of Public Transport** Chairman – MrTaj Hassan, Special Commissioner of Police, Traffic, Delhi Co-chair – Mr A.K. Gupta, Chief engineer Planning, DMRC	**Asia BRTS**

<table>
<tr><th>Time (hrs)</th><th>Hall 1- Zorawar</th><th>Hall 2 - Ashoka</th><th>Hall 3 - Shamsher</th><th>Hall 4 - Taber</th><th>Hall 5 - Talwar</th></tr>
<tr><td></td><td>Rapporteur –Ms Virandra Vidrohi</td><td>Rapporteur –Mr Amar Nath</td><td rowspan="5">Choudhary, Executive Director, CSE

Rapporteur – Mr Vedant Goel, GIZ</td><td rowspan="5">Presenter – Shri T. Shiva kumar, GM-operations, Chennai Metro

Rapportur – Ms Ajanta Kafley</td><td rowspan="5"></td></tr>
<tr><td>Role of IPT in small and Medium size cities - Ms Ritu Anand, group head- Policy & Chief Economist, IDFC Experience of</td><td>Raahgri Day- Car Free Streets in Gurgaon – Mr Amit Bhatt, EMBARQ</td></tr>
<tr><td>G-Auto, Ahmedabad - MrNirmal Kumar, Nirmal Foundation</td><td>Walkability - Ritchie Anne Rono, CAA</td></tr>
<tr><td rowspan="2">Zipcar Washington - Robin Chase, Board Member, WRI</td><td>NMT Infrastructure – Mr Arvind Kumar</td></tr>
<tr><td>Pedestrian Safety along BRT – Neha Khullar, Project Director, Muskan Foundation</td></tr>
<tr><td>1300-1400</td><td colspan="5">Valedictory Session(Ashoka Hall)
Presentation of the summary of proceedings of the Conference by Shri M.K. Sinha, Officer on Special Duty (UT), MoUD
Address by DrSudhirKrihna, Secretary, Ministry of Urban Development, GoI
Presentation of UMI Awards, Launch of UMI 2014 and Valedictory Address by Shri. B.I.Singal, Director General, IUT (India)
Vote of Thanks by Shri C.K. Khaitan, JS (UT), Ministry of Urban Development, GoI</td></tr>
<tr><td>1400-1500</td><td colspan="5">Lunch</td></tr>
</table>

Organizing Committee for Urban Mobility India - 2013

S. No.	Name of the Member
1	Shri S.K.Lohia, Ex OSD(UT), MoUD & Chairman OC
2	Shri R. K. Singh, Director (UT)
3	Shri. K. K. Mahawar, DS (Finance), MoUD
4	Dr. S. Gangopadhyay, Vice President, IUT
5	Shri S.K. Jagdhari, Vice President, IUT
6	Dr. K. Ravindra, Hony. Secretary, IUT
7	Shri Vinay Maitri, Hony. Jt. Secretary, IUT
8	Shri Rakesh Kaul, Hony. Treasurer, IUT
9	Shri Rajiv Choudhary, Member
10	Shri J. B. Kshirsagar, CP, TCPO
11	Shri M.L.Chotani Member, Ex Director AMDA
12	Shri. Chetan Vaidya, Ex Director, NIUA
13	Shri Nishant Lall, IUDI/SPA
14	Shri Vishnu Mathur, Member
15	Shri Dishant Negi, Member
16	Shri I. C. Sharma, Member
17	Shri Jagan Shah, Dir. NIUA, Member
18	Shri B. I. Singal, DG, IUT, Member
19	Shri C. L. Kaul, ES, IUT, Member
20	Ms. Kanika Kalra, IUT, Member
21	Ms. Megha Puri, Manager (UMI), IUT
22	Shri Sandeep Sharma, IUT, Member

Annexure - III

SPONSORS (UMI – 2013)

S. No.	Company Name
1	DIMTS
2	DMRC
3	KSRTC
4	BMTC
5	DDA
6	Bhopal City Link Limited
7	ITDP
8	Embarq
9	Volvo
10	Bombardier
11	Deloitte
12	Shakti
13	UMTC
14	UNEP
15	SUTP
16	Cambridge Systematics
17	SIAM
18	Ahmedabad JANMARG
19	SURAT
20	PUNE
21	PCMC
22	BMRC
23	IBI Group
24	Kochi
25	HMRL
26	RITES
27	AICTSL
28	Xerox
29	APSRTC
30	Jaipur Metro Rail Corporation
31	HUDA

Annexure IV

EXHIBITORS (UMI – 2013)

S. No	Company Names
1	MMRDA
2	Trapeez
3	Allison Transmission
4	Scomi
5	Sunovatech India
6	Lumiplan India
7	Power Electronics
8	Automobile Corporation of Goa Ltd
9	Tata Motors
10	Ashok Leyland
11	Force
12	Scania india
13	ICRA
14	PME FCTA
15	GIRO
16	KPIT
17	Chemito
18	Silguri Jalpaiguri Development Authority
19	GDA
20	HOHO BUS
21	RAHAGIRI CYCLE
22	National Institute of Design

Abbreviations and Acronyms

ADB	-	Asian Development Bank
APSRT	-	Andhra Pradesh State Road Transport
ASCI	-	Administrative Staff College of India (Hyderabad)
BRT	-	Bus Road Transit
BRTS	-	Bus Road Transit System
BMRCL	-	Bangalore Metro Rail Corporation Ltd.
BEST	-	Bombay Electric Supply and Transport
BMTC	-	Bangalore Metropolitan Transport Corporation
BAU	-	Business as Usual
CEPT	-	Centre for Environment Planning and Technology (Ahmedabad)
CAA	-	Civic Aviation Authority
CMP	-	Comprehensive Mobility Plan
DPR	-	Detailed Project Report
DULT	-	Directorate of Urban Land Transport
DMRC	-	Delhi Metro Rail Corporation
FAR	-	Floor Area Ration
FIR	-	First Information Report
GDP	-	Gross Domestic Product
GPS	-	Global Positioning Systems
GHG	-	Green House Green
GIS	-	Gesellschaft Zusammenarbiet (German Institute)
HOD	-	Head of Department
HOVs	-	High Occupancy Vehicles
HDV	-	High Density Vehicle
IUT	-	Institute of Urban Transport (India)
IPT	-	Intermediate Public Transport
IIT	-	Indian Institute of Technology
ITS	-	Intelligent Transport System
ITDP	-	Institute for Transport and Development Policy (USA)
ICLEI	-	International Centre for Local Environmental Initiatives
JNNURM	-	Jawaharlal Nehru National Urban Renewal Mission

JTPA	-	Japan Transport Planning Association
KSRTC	-	Karnataka State Road Transport Coporation
LRT	-	Light Road Transit
LTA	-	Land Transport Authority (Singapore)
LMATA	-	Lagos Metropolitan Area Transport Authority (Lagos)
MTSU	-	Mumbai Transport Support Unit
MoUD	-	Ministry of Urban Development
MD	-	Managing Director
NUTP	-	National Urban Transport Policy
NMT	-	Non-Motorized Transport
NCRPB	-	National Capital Region Planning Board
NTDPC	-	National Transport
PMV	-	Personal Motorized Vehicles
RTIDF	-	Rajasthan Transport Infrastructure Development Fund
RITES	-	Rail India Technical and Economic Services
SPA	-	School of planning and Architecture
SLoCaT	-	Sustainable Low Carbon Transport
TERI	-	The Energy and Resources Institute
TTMC	-	Traffic and Transit Management Centers (Bangalore)
TDR	-	Transferable Development Rights
TDM	-	Travel Demand Management
TOD	-	Transit Oriented Development
UMI	-	Urban Mobility India
UNEP	-	United Nations Environment Programme
UTTIPEC	-	Unified Traffic and Transport Infrastructure
UMTA	-	Unified Metropolitan Transport Authority
VC	-	Vice Chairman
WRI	-	World Resource Institute (Washington)

Prepared by Institute of Urban Transport (India)