

Seminar Towards Sustainable Urban Mobility

25th February 2011

Proceedings and Recommendations



Chennai Metropolitan Development Authority

Thalamuthu– Natarajan Building,

1, Gandhi-Irwin Road,

Egmore, Chennai-600 008

Tel: 2841 4855, Fax: 2854 8416, e mail: mscmda@tn.gov.in

Editorial Committee

- (i) Thiru K.Kumar
Chief Planner, CMDA
- (ii) Thiru M. Sivashanmugam
Senior Planner
- (ii) Tmt. R. Meena
Assistant Planner, CMDA

Supported by

Tmt. K. Mekala, Steno Typist

Tmt. S. Syamala, Steno Typist

Seminar Organising Committee

Overall Management

1. Thiru C.Palanivelu
Member –Chief Planner
2. Thiru K.Kumar
Chief Planner

Core Management

1. Thiru B.S.Ravindran
Chief Planner
2. Thiru R.K.Ganeshan
Chief Planner i/c
3. Thiru S.R.Rajendhiran
Chief Planner i/c
4. Thiru M.Malaichamee
Senior Financial Analyst
5. Thiru S.Selvakumar
Senior Planner
6. Dr. S.Rajasekara Pandian
Senior Planner
7. Thiru R. Kanagavel
Senior Planner
8. Thiru M. Sivashanmugam
Senior Planner
9. Tmt.N.Usha
Deputy Planner

Management Support

1. Thiru N. Kanagasabapathy
Deputy Planner

2. Tmt. D. Esther
Deputy Planner
3. Thiru K. Rajamanickam
Deputy Planner
4. Thiru V. Kumar
Assistant Planner
5. Tmt. R. Meena
Assistant Planner
6. Thiru D.Gunasekaran
Public Relation Officer
7. Thiru Kandasamy
Community Officer

Supporting staff

8. Tmt. K. Mekala, Steno Typist
9. Tmt. S. Syamala, Steno Typist
10. Thiru R. Rajendran, Steno Typist
11. Tmt. H. Subbulakshmi, Steno Typist
12. Tmt.G.Shanthi, Plg.Asst.Gr.III
13. Tmt. N.Sasikala, Junior Assistant

Logistic Support

1. Tmt. S.Lakshmi Prabha
System Analyst
2. Thiru K.Jeyakumar
Network Engineer
3. Thiru V.Raja
System Engineer
4. Thiru N.Mahendra Mani
Sr.Photographer

Seminar
Towards Sustainable Urban Mobility
held on 25th February 2011 at Chennai.

Proceedings and Recommendations

The Chennai Metropolitan Development Authority has organised a one-day seminar on 'Sustainable Urban Mobility' on 25-2-2011 in the Hotel Le Royal Meridien, No.1, GST Road, St.Thomas Mount, Chennai-600016. Against the back-drop of the Second Master Plan for the Chennai Metropolitan Area which has come into force in Sep.2008 and the recently completed Chennai Comprehensive Transportation Study (CCTS), efforts are afoot to build a world-class urban transportation infrastructure for the metropolis to cope with the ever-increasing travel demand, in the next two decades. The seminar has been organized to serve as a platform for the sharing of ideas and the experiences of various metropolitan cities. The Chennai Metropolis has been benefited greatly from the experiences of other metropolitan cities in the country as its urban transportation strategy is shaped.

2. The principal stakeholders of urban transportation in the CMA are Department of Highways (DoH), Corporation of Chennai (CoC), the Government in the Transport Department, Metropolitan Transport Corporation, Chennai Metro Rail Ltd., Chennai Traffic Police, Southern Railway, Chennai Sub-urban Police, Airport Authority of India, Chennai Port Trust, Ennore Port Trust and the Local Bodies in the CMA.

3. The seminar has been structured with four technical sessions covering topical issues relating to (i) transportation infrastructure proposed for metropolitan areas (ii) Metro Rail project and related planning aspects in different Cities, (iii) Strengths and weaknesses of BRTS, (iv) Role of mass transit options with intermediate capacity such as mono rail and LRT, (v) Financing urban transport infrastructure, (vi) Role of traffic engineering in urban mobility (vii) Emphasis on pedestrian walkways and cycle-paths, (viii) Potential of travel demand management, apart from the inaugural session and the concluding session.

4. Thiru Dayanand Kataria, IAS Member Secretary, CMDA, in his welcome address in the inaugural session, stated that with the objective of benefitting from the experiences of other sister-cities in the country, the CMDA has organised this one-day seminar. The fact that many delegates representing the length and breadth of the country are participating in the seminar has elevated the seminar to a national level deliberation. It is heartening to note that the experiences of cities like Delhi, Mumbai, Bengaluru, Ahmedabad and Jaipur would be discussed at the seminar for evolving a strategy to promote the cause of sustainable urban mobility.

5. Tmt. Susan Mathew, IAS, Additional Chief Secretary and Vice Chairperson, CMDA in her presidential address, outlined the facts that emerged out of studies conducted by the CMDA in the past. Citing the modal share of walking and cycling which accounted for 34% of the total trips as per the CCTS Study, she informed that as in most of the other cities in India, pedestrians and cyclists are the most neglected group in Chennai and the infrastructure laid for these modes such as foot-paths and cycle lanes are virtually non-existent. Listing the important policies and strategies and the plan of action envisaged in the Second Master Plan (SMP) for CMA, she informed that as a follow-up of the identification of strategies, the Government of Tamil Nadu have decided to establish the Chennai Unified Metropolitan Transport Authority (CUMTA) for the co-ordination and streamlining of the activities of the multifarious agencies involved in the planning, operation and management of transportation systems in the Chennai Metropolitan Area. The Chennai Unified Metropolitan Transport Authority Act 2010 has been notified and the rules and regulations of the Act are being formulated. The CUMTA is looked forward to with great expectations and is expected to improve the share of mass transit modes and optimize the utilization of urban transport infrastructure.

7. Thiru Paruthi Ellamvazhuthi, Hon'ble Minister for Information and Chairman, CMDA inaugurated the seminar and delivered the inaugural address. The inaugural address covered the various initiatives taken by the Govt. in the past five years in regard to urban transport infrastructure in the Chennai Metropolitan Area. While the urban transport infrastructure schemes implemented in the last five years included 7 flyovers and one road underpass, the schemes under progress included 5 flyovers and 2 road underpasses. Recalling the award conferred recently by the CNN-IBNN for Tamil Nadu as the best maintained State, he pointed

out that while the per capita income in the State has increased from Rs.39,692 in 2005-2006 to Rs.69,377 in 2009-2010, the GDP of the State which is 8.96% in 2009-2010 is likely to grow to 10% in the current year.

8. In the four technical sessions, 15 speakers made presentations on varying topics. The seminar was well received by all the stakeholders and was attended by over 200 delegates. It has brought together policy makers, experts, researchers, implementers, NGOs, officials of Government Departments and Agencies in the field of traffic and transportation and also a few interested citizens of Chennai.

9. There was no formal valedictory session owing to certain pre-occupations of the Hon'ble Minister for Information and Chairman, CMDA, and the Worshipful Mayor of Corporation of Chennai. The recommendations of the seminar were, however, consolidated and read out by Tmt. Susan Mathew, IAS, Additional Chief Secretary to Government and Vice Chairperson, CMDA at the conclusion of all the 4 technical sessions. The recommendations are listed below:

- i. Metropolitan development shall be sustainable, in its environmental, economic and social aspects; urban mobility development is a vital part of it;
- ii. In Chennai, a city with a long history, the Govt. intervention for area development by acquiring large extent of lands is limited which has impacted and limited the creation of road space;
- iii. Though the objective of distribution of population in a planned way over space in the metropolitan area is fairly achieved through implementation of Master Plans and land use zoning, the transport development in the Chennai Metropolis is not commensurate with the area growth;
- iv. Challenges in transport development are not exclusive; they are interlinked with those in respect of other urban infrastructure such as water supply, sewerage and housing;
- v. Large-scale re-housing of slum dwellers in Mumbai has brought to light new challenges in mobility planning; Metropolitan transport planning shall be inclusive, addressing the needs of poor;

- vi. The cities are engines of growth in a developing economy like ours; traffic congestion resulting in grid-locks, can cripple the city life, and if continued it will make the city dysfunctional. Due attention has to be given addressing the transport issues;
- vii. Public transport is an important part of the strategy for sustainable mobility. It is also important to address movement of goods vehicles and the private vehicles;
- viii. The seminar took note of the following major urban mobility developments in other Indian cities:

Mumbai

Mumbai Urban Transport Project – MUTP	:	Rs. 5,127 crores
Mumbai Urban Transport Project II– MUTP	:	Rs. 5,300 crores
Mumbai Urban Infrastructure Project – MUIP	:	Rs.1,438 crores
Mumbai Metro Rail (9 corridor in 3 phases for a length of 146.3 km)	:	Rs.47,092 crores
Mumbai Mono Rail (20 Km)	:	Rs.2,460 crores
Multimodal corridors (140 km)	:	Rs.10,000 crores
BRTS (50 km)	:	Rs.1,300 crores

Bengaluru

Bangalore Metro Phase-II (66.9 km)	:	Rs.18,315 crores
------------------------------------	---	------------------

Jaipur

Jaipur Metro (about 28 km) (DMRC)	17 km	:	Rs.9,100 crores
(PPP)	11 km		

- ix. Mobility of people must be the prime concern when planning for transport infrastructure in cities;
- x. Cities must be livable and evolve into a sustainable urban form. To achieve this land use planning and transport must be integrated;
- xi. Priority should be for mass transport systems in transport planning; The mass transit systems could play a very effective role in carrying bulk of the trips; in Mumbai the modal share of the mass transit system is 78%;
- xii. All the transit demand cannot be met by few km of MRTS or metro. Hundreds of kms of metro might be needed. In contrast, BRT could be an economical and sustainable solution and can cover a large network.
- xiii. There must be equitable allocation of road space; preferential allocation should be made for LRT, BRT and footpaths;

- xiv. No single transit mode can address the entire needs of the cities. The medium capacity system such as mono rail has therefore a role to play. It could supplement and interconnect metro rail and suburban systems. Where there is constraint in road space and geometrics, mono rail is preferable to BRTS. Mono rail, LRT and BRTS can be the prime transit solutions for 2-tier and 3-tier cities;
- xv. Suitable multi modal corridors should be planned in cities for their efficient use of road space.
- xvi. Parking problems in cities are acute; the parking policy should take into account the need for appropriate pricing, multilevel parking and levy of penalty for non-provision of parking;
- xvii. The vehicle permit policy needs to be rationalized;
- xviii. Safety and environmental audits should be carried out for all major transport infrastructure schemes;
- xix. The community should value the urban transport infrastructure and help in the efficient use of it;
- xx. The mobility requirements of people need to be recognized. The feasibility and potential of skywalk to interconnect transit stations and improve safe mobility of pedestrians have to be recognized and accordingly planned;
- xxi. Infrastructure for non-motorised transport such as foot-paths, pedestrian ways, sky-walks, cycle lanes/cycle ways etc. have to be improved/adequately provided;
- xxii. The UMTA needs to be established with appropriate legal framework in all metropolitan cities. Intermodal integration leading to common ticketing can be realized through UMTAs.
- xxiii. Urban development authorities are better placed to assist UMTAs in the planning of urban transport infrastructure;
- xxiv. Planning and development of urban transport infrastructure at the grass-root level need to be recognized and accordingly the local bodies have to be strengthened. Urban development authorities can set up transport cells in local bodies;
- xxv. The development of the metro rail in Chennai would assist in the reduction of traffic congestion. The Metro Rail stations should be designed to cater to modal integration

providing for pickup and drop-off areas, parking of cars and two-wheelers, bus interchange and para-transit modes such as auto-rickshaws and taxis;

- xxvi. Additional corridors of Chennai Metro Rail identified for a length of 63 km need to be studied and implemented early;
- xxvii. Transit-oriented development has to be recognized and dovetailed into the urban development planning;
- xxviii. The Government of Tamil Nadu and Railways could consider converting the *Chennai suburban rail* into a corporation and reinvest in rolling stock and system on the Mumbai model;
- xxix. The Government of Tamil Nadu and Railways could consider converting the *MRTS* into a corporation, with funds for reinvestment in modernizing the rolling- stock and system;
- xxx. Public transits which are presently not commuter-friendly, need to be improved and provide high quality of service;
- xxxi. The existing quality of the bus transport fleet leaves much to be desired. There must be adequate funds by the State and Central Governments. The question of participation by corporate sector in the public transport system can be explored;
- xxxii. As all the travel demand cannot be supplied, there is a need to curtail demand; hence travel demand management (TDM) becomes necessary;
- xxxiii. TDM aims at trip reduction, reducing vehicle use and increase vehicle occupancy and has a role to play in city transport planning. Rotating weekly holidays for markets has produced positive results as studies in New Delhi have shown;
- xxxiv. International experience in congestion pricing, parking management etc. revealed the potential of TDM;
- xxxv. Recognising resource limitation, the financing of urban infrastructure can exploit the utility of property development, advertisement, TDR, road pricing, leveraging lending etc.
- xxxvi. Traffic engineering has a role to play in improving the urban mobility. Advanced traffic management system (ATMS), advanced travel information system (ATIS) and advanced public transport system (APTS) can be productively deployed for improving urban mobility.

Contents

Programme	Page No.
Inaugural Session	
1. Welcome Address by <i>Thiru Dayanand Kataria, IAS, Member Secretary, CMDA</i>	2
2. Presidential Address by <i>Tmt. Susan Mathew IAS., Addl Chief Secretary to Govt. of Tamil Nadu & Vice Chairperson, CMDA</i>	4
3. Inaugural Address by <i>Thiru Parithi Ellamvazhuthi, Hon'ble Minister for Information, Govt. of Tamil Nadu and Chairman, CMDA</i>	7
Technical Session I	
4. Metropolitan Transport - Planning and Policy Issues by <i>Dr.T. Anantharajan, Retd. Professor, Anna University</i>	11
5. Transport Infrastructure for the Mumbai Metropolitan Region by <i>Thiru B.M. Setty, Chief General Manager,(T&T), LASA on behalf of Thiru P.R.K. Murthy, Chief, Transport & Communications Dn., MMRDA</i>	17
6. Transport Infrastructure for Chennai Metropolitan Area as recommended by CCTS by <i>Thiru R.Krishnamurthy Vice-President, Wilbur Smith Associates Pvt. Ltd.</i>	64
Technical Session II	
7. Planning and Implementation of Chennai Metro Rail Project by <i>Thiru K. Rajaraman, IAS, Managing Director, Chennai Metro Rail Limited</i>	85
8. Planning and Implementation of Bengaluru Metro Rail Project by <i>Thiru N.Sivasailam, IAS, Managing Director Bengaluru Metro Rail Corporation Ltd.</i>	120
9. Planning for Jaipur Metro Rail Project by <i>Dr.Valsala C Nair, Director & Dr.R.Udayakumar, Project Manager, Wilbur Smith Associates Pvt. Ltd.</i>	136
Technical Session III	
10. Transit Options with Intermediate Capacities for Mega-Cities by <i>Ms Sumitra Iyengar, President, International Monorail Association, Geodesic Techniques Pvt.Ltd., Bengaluru</i>	155
11. BRTS: Strengths and Weaknesses by <i>Thiru Ravi Gadepalli ITRANS Pvt. Ltd, TBIU, IIT-Delhi</i>	166

12.	Implementation of BRTS in Ahmedabad by Ms Shreya Gadepalli, Senior Program Director, ITDP	180
-----	---	-----

13.	Improving Mass Mobility through Bus Transit by Thiru R. Balasubramaniam, Director, CIRT, Pune	202
-----	---	-----

Technical Session IV

14.	Financing Urban Transport Infrastructure in Mega-Cities by Dr. Pawan Maini, Senior Industry Specialist International Finance Corporation, New Delhi	210
-----	---	-----

15.	Design of City Streetscape in Mega-Cities: Emphasis on Pedestrians and Cyclists by Ms Shreya Gadepalli Senior Program Director, ITDP	217
-----	--	-----

16.	Importance of Traffic Engineering in Urban Mobility by Thiru Vinoba Sunder Singh, Sr. Vice-President, Urban Mass Transit Company Ltd. Bengaluru	280
-----	---	-----

17.	Travel Demand Management in Urban Transportation by Dr Sanjay Gupta, Professor, School of Planning & Architecture, New Delhi	289
-----	--	-----

18.	Role of ITS in Sustainable Urban Mobility by Dr. R. Sivanandam, Professor, IIT-Madras	302
-----	---	-----

Concluding Session

19.	Presentation of Main Recommendations of the Seminar by Tmt. Susan Mathew IAS., Addl CS & VC, CMDA	313
-----	---	-----

Others

Photos	318
--------	-----

Technical Papers (not presented)	345
----------------------------------	-----

Press Clippings	
-----------------	--

Seminar

Towards Sustainable Urban Mobility

at Hotel Le Royal Meridien, No.1, GST Road, St.Thomas Mount, Chennai-600016

on 25th February 2011

Programme

Inaugural Session	10.00 a.m. to 10.45 a.m.	
• Welcome Address		Thiru Dayanand Kataria, IAS <i>Member Secretary, CMDA</i>
• Presidential Address		Tmt Susan Mathew, IAS <i>Additional Chief Secretary to Government & Vice -Chairperson, CMDA</i>
• Special Address		Thiru Ashok Dongre, IAS <i>Secretary to Government, H&UD Department, GoTN</i>
• Inaugural Address		Thiru Parithi Ellamvazhuthi <i>Hon'ble Minister for Information & Chairman, CMDA</i>
• Vote of thanks		Thiru R.K.Ganeshan <i>Chief Planner i/c, CMDA</i>
Tea Break	10.45 a.m. to 11.00a.m.	
Technical Session I	11.00 a.m. to 12.00 Noon	Chairman – Dr.T. Anantharajan, <i>Retd. Professor, Anna University</i> Rapporteur: Tmt R.Meena <i>Assistant Planner, CMDA</i>
Brief Introduction of the Panelists		
• Metropolitan Transport - Planning and Policy Issues		Dr.T. Anantharajan <i>Retd. Professor, Anna University</i>
• Transport Infrastructure for the Mumbai Metropolitan Region		Thiru B.M. Setty <i>Chief General Manage (T&T), LASA</i>
• Transport Infrastructure for Chennai Metropolitan Area as recommended by CCTS		Thiru R.Krishnamurthy <i>Vice-President, Wilbur Smith Associates Pvt. Ltd</i>
Discussion		
Technical Session II	12.00 Noon to 1.00 p.m.	Chairman – Dr.M.S.Srinivasan <i>Advisor,TNUIFSL</i> Rapporteur: Tmt D.Esther <i>Deputy Planner, CMDA</i>
Brief Introduction of the Panelists		
• Planning and Implementation of Chennai Metro Rail Project		Thiru K. Rajaraman, IAS <i>Managing Director Chennai Metro Rail Limited</i>
• Planning and Implementation of Bengaluru Metro Rail Project		Thiru N.Sivasailam, IAS <i>Managing Director Bengaluru Metro Rail Corporation Ltd</i>
• Planning for Jaipur Metro Rail Project		Dr.Valsala C Nair, <i>Director</i> & Dr.R.Udayakumar <i>Project Manager, Wilbur Smith Associates Pvt. Ltd.</i>
Discussion		
Lunch Break	1.00 p.m. to 2.00 p.m.	

Technical Session III 2.00 p.m. to 3.15 p.m.		Chairman – Dr.Thamizh Arasan <i>Professor, IIT-Madras</i> Rapporteur: Thiru. C.S.Murugan <i>Deputy Planner, CMDA</i>
Brief Introduction of the Panelists		
• Transit Options with Intermediate Capacities for Mega-Cities		Ms Sumitra Iyengar <i>President, International Monorail Association Geodesic Techniques Pvt.Ltd., Bengaluru</i>
• BRTS: Strengths and Weaknesses		Thiru Ravi Gadepalli <i>ITRANS Pvt. Ltd, TBIU, IIT-Delhi</i>
• Implementation of BRTS in Ahmedabad		Ms Shreya Gadepalli <i>Senior Program Director, ITDP</i>
• Improving Mass Mobility through Bus Transit		Thiru R. Balasubramaniam <i>Director,CIRT, Pune</i>
Discussion		
Technical Session IV 3.15 p.m. to 4.30p.m.		Chairman – Thiru R.Ramanathan, IRSE <i>Chief Administrative Officer, S.Rly.</i> Rapporteur: Thiru C.Prem Ananth Surendran <i>Deputy Planner, CMDA</i>
Brief Introduction of the Panelists		
• Financing Urban Transport Infrastructure in Mega-Cities		Dr. Pawan Maini <i>Senior Industry Specialist International Finance Corporation, New Delhi</i>
• Design of City Streetscape in Mega-Cities: <i>Emphasis on Pedestrians and Cyclists</i>		Ms Shreya Gadepalli <i>Senior Program Director, ITDP</i>
• Importance of Traffic Engineering in Urban Mobility		Thiru Vinoba Sunder Singh <i>Sr. Vice-President, Urban Mass Transit Company Ltd. Bengaluru</i>
• Travel Demand Management in Urban Transportation		Dr Sanjay Gupta <i>Professor, School of Planning & Architecture, New Delhi</i>
• Role of ITS in Sustainable Urban Mobility		Dr. R. Sivanandam <i>Professor, IIT-Madras</i>
Discussion		
Tea Break 4.30 p.m. to 4.45 p.m.		
Concluding Session 4.45 p.m. to 5.45 p.m.		
• Reading of the Recommendations of the Seminar		Tmt Susan Mathew, IAS <i>Additional Chief Secretary to Government & Vice -Chairperson, CMDA</i>
• Vote of thanks		Thiru B.S. Ravindran <i>Chief Planner, CMDA</i>