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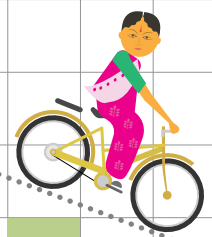
Ministry of Housing and Urban Affairs
Government of India

Green Urban Mobility Partnership

EXECUTIVE PROGRAMME IN SUSTAINABLE TRANSPORT



Federal Ministry
for Economic Cooperation
and Development

INSTITUTE OF URBAN TRANSPORT (INDIA)

CRDF CEPT RESEARCH AND DEVELOPMENT FOUNDATION
CEPT UNIVERSITY

TUMI
Transformative Urban Mobility Initiative

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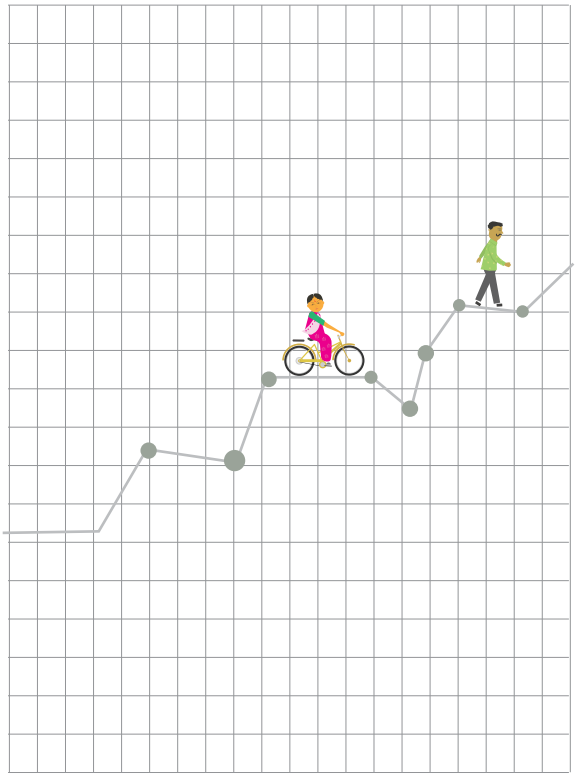

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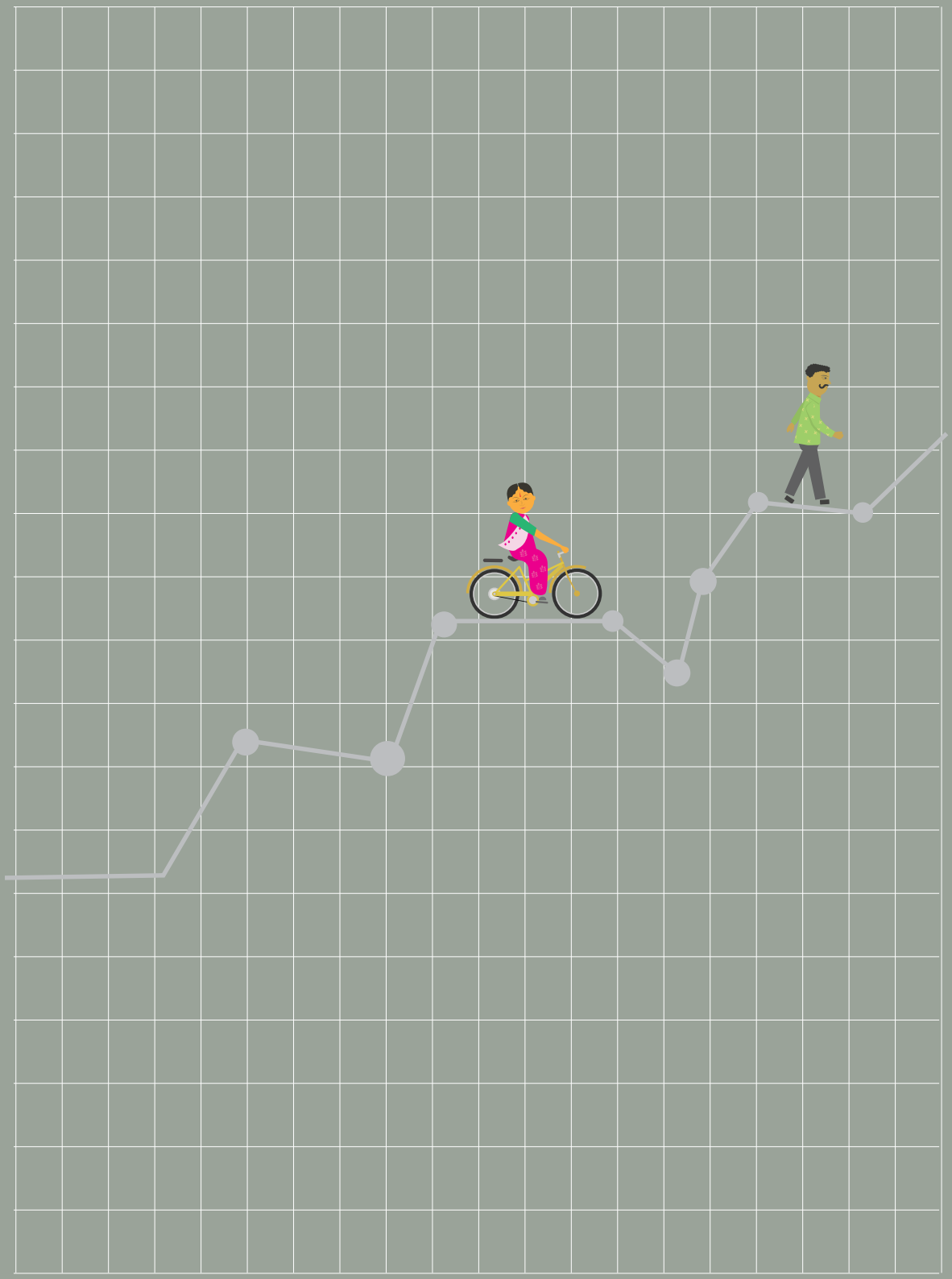
EXECUTIVE PROGRAMME IN SUSTAINABLE TRANSPORT



CONTENTS

LIST OF FIGURES

LIST OF ABBREVIATIONS

AICTSL	- Atal Indore City Transport Services Limited
AJL	- Ahmedabad Janmarg Limited
AMTS	- Ahmedabad Municipal Transport Service
CoE-UT	- Centre of Excellence in Urban Transport
CRDF	- CEPT Research and Development Foundation
CRUT	- Capital Region Urban Transport
CTU	- Chandigarh Transport Undertaking
DMRC	- Delhi Metro Rail Corporation
DULT	- Directorate of Urban Land Transport
GIZ	- Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GoI	- Government of India
IRSDC	- Indian Railway Stations Development Corporation Limited
ITS	- Intelligent Transport Systems
IUT	- Institute of Urban Transport India
MaaS	- Mobility as a Service
MoHUA	- Ministry of Housing and Urban Affairs
NCRPB	- National Capital Region Planning Board
NEA	- New Emerging Areas
NUTP	- National Urban Transport Policy
PwC	- Price Waterhouse and Coopers
SJPNL	- Shimla Jal Prabandhan Nigam Limited
SPA	- School of Planning and Architecture
TUMI	- Transformative Urban Mobility Initiative
UMI	- Urban Mobility India Conference
WRI	- World Resources Institute

मनोज जोशी
सचिव
Manoj Joshi
Secretary

भारत सरकार
आवासन और शहरी कार्य मंत्रालय
निर्माण भवन, नई दिल्ली–110011
Government of India
Ministry of Housing and Urban Affairs
Nirman Bhawan, New Delhi-110011

FOREWORD

The Ministry of Housing and Urban Affairs (MoHUA), Government of India (GoI), has been supporting Indian cities with several urban renewal schemes to make cities more liveable and sustainable. The focus of MoHUA is to build a resilient urban transport system that is safe, comfortable, and affordable for all. Post COVID-19 lockdowns and restrictions, MoHUA had initiated various schemes to reverse the adverse impacts of the pandemic on urban transport systems to have a more sustainable future. However, there is rigorous need to build the capacity of officials at all levels working in the field of Urban Transport in order to truly achieve the goals set in.

India's National Urban Transport Policy (NUTP), 2006, also emphasises building capabilities at the state and city level to address complexities associated with mobility in urban areas and promote sustainable transport. The Ministry has been supporting the capacity building of officials at national, state and city level over the years through various initiatives such as the Sustainable Urban Transport Project, Efficient and Sustainable City Bus Service Project, Smart Cities Mission, and AMRUT Mission. GoI in the Budget 2022 plans to bring a paradigm change in urban planning in view of the rapid urbanization in the country and has announced to set-up a high-level expert panel of urban planners and institutes to formulate policies, capacity building and implementation for a sustainable urban development. The purpose of individual training is to enhance the functional knowledge, improve job-related skills, and change the attitude of municipal functionaries. Taking the initiative forward, the Ministry organised another capacity building initiative through the "Executive Programme in Sustainable Transport".

The Executive Programme in Sustainable Transport is part of "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)" project of my Ministry, commissioned, and funded by the German Federal Ministry for Economic Cooperation and Development (BMZ). The programme was formulated during Urban Mobility India Conference 2020. The SMART-SUT project is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH with support from Centre of Excellence in Urban Transport (CoEUT) and CEPT Research and Development Foundations, Institute of Urban Transport (IUT) India and Transformative Urban Mobility Initiatives (TUMI) in association with partner States and Cities.

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The executive programme aims at enhancing the capacities of in-service transport professionals at State/City level agencies with an innovative approach sensitising participants to new emerging areas and sub-sectors in transport, their inter-relationships and role in achieving sustainability .It was attended by 28 delegates who were selected from 26 different organisations spread across the country. The programme was modular in structure. It included Active Learning Workshop, Action Learning Project, and Cross-Learning Workshop.

During the capacity building programme, the officials actively participated in the learning programme and identified solutions to the problems which cities are encountering in urban transport sector. I hope that the participants would carry forward the learnings from the programme and scale-up the implementation to make their cities move further towards sustainable mobility. I wish all the success to the participants who will be responsible for making our cities more sustainable and resilient.

Manoj Joshi

(Manoj Joshi)

New Delhi
20th June, 2022

FOREWORD

Ministry of Housing and Urban Affairs (MoHUA) with support from GIZ is implementing the "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)". SMART-SUT is commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ). The project contributes to the Green Urban Mobility Partnership (GUMP) established between India and Germany in 2019. As part of the partnership GIZ India is supporting Indian cities to improve their green urban mobility infrastructure, strengthening the capacities of national, state, and local institutions to design and implement sustainable, inclusive, and smart mobility solutions to reduce the impacts of climate change.

As part of the SMART-SUT project, GIZ supported MoHUA in planning and execuing a capacity building programme - **"Executive Programme in Sustainable Transport".** The programme takes forward the initiative of MoHUA towards the capacity building of senior and mid-level Government officials and decision makers to enhance their awareness on urban transport issues and develop their skills in urban transport planning and management in a comprehensive manner.

The Centre of Excellence in Urban Transport, CEPT-CRDF, Ahmedabad offered the programme in association with TUMI (Transformative Urban Mobility Initiatives) and Institute of Urban Transport (IUT) (India) as knowledge partners. The programme supported in improving the capacities and skills of national/state/city level officials engaged in urban transport projects targeted to achieve Sustainable Development Goals (SDGs).

I would like to extend my regards to the MoHUA for partnering with BMZ and GIZ under the GUMP, furthering its commitment to make sustainable and green urban mobility in Indian cities a reality. GIZ is keen to support MoHUA in continuous innovation and transformation of urban mobility in India.

I would also like to congratulate MoHUA and all the other national, state and city level partners, the 28 government officials who participated in the programme. I am certain that this is just the beginning of one such programme and GIZ will be supporting MoHUA in organising many more capacity building programmes in future.

Ernst Doering
Cluster Coordinator
Sustainable Urban Industrial Development (SUID)
GIZ India

1

INTRODUCTION

Considering the NUTP (2006), the Government of India (GoI) launched several initiatives for reducing the usage of personal motor vehicles and supporting cities to build resilient, safe, reliable, inclusive, and affordable mobility systems. To achieve this, our cities need skilled professionals and informed executives to steer policies and projects in the direction that would enable cities to achieve the goals set out in the NUTP.

When it comes to urban mobility, the scale, magnitude, and impact of the challenges are so dynamic and adverse that city planners and transport professionals need to remain updated and anticipate developments to offer solutions and alternative strategies in time.

In this perspective, GIZ developed the capacity building programme which offers a comprehensive and contextual capacity building programme for working professionals, with support from Centre of Excellence in Urban Transport, CEPT, Ahmedabad, targeting senior and middle level professionals engaged in urban mobility related projects at national, state and city level, as follows.

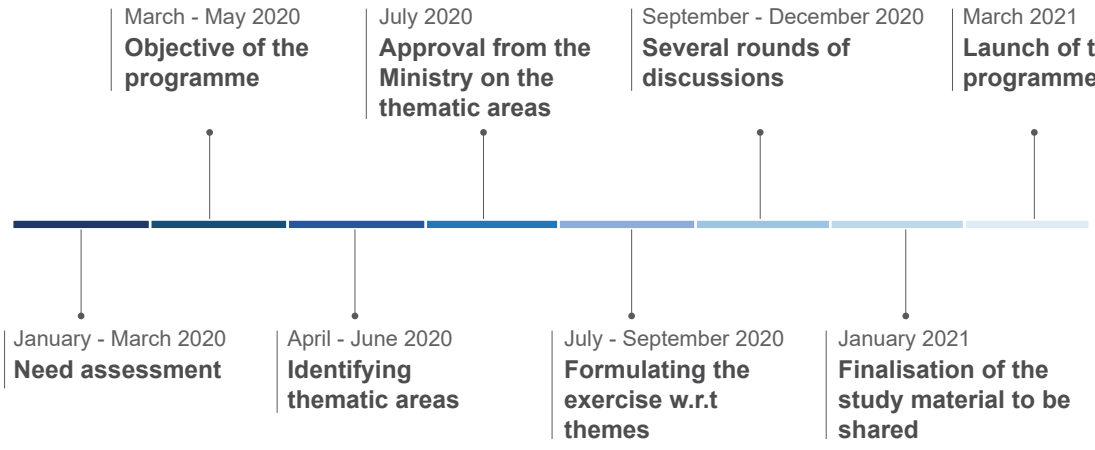


Figure 1-1: Framework for Developing Sustainable Urban Transport Capacity Building Programme

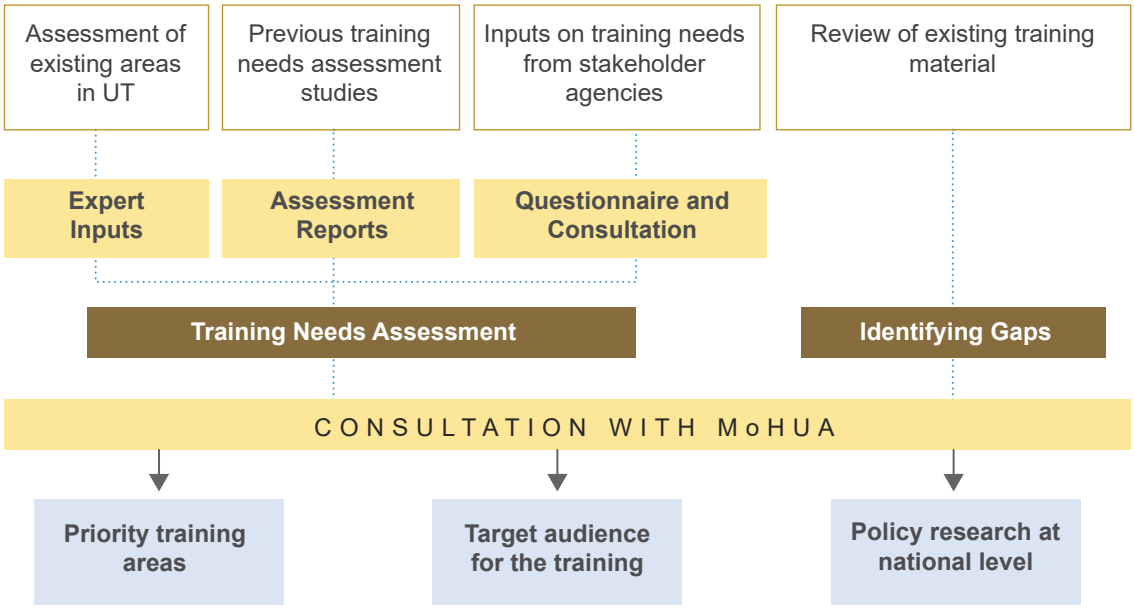
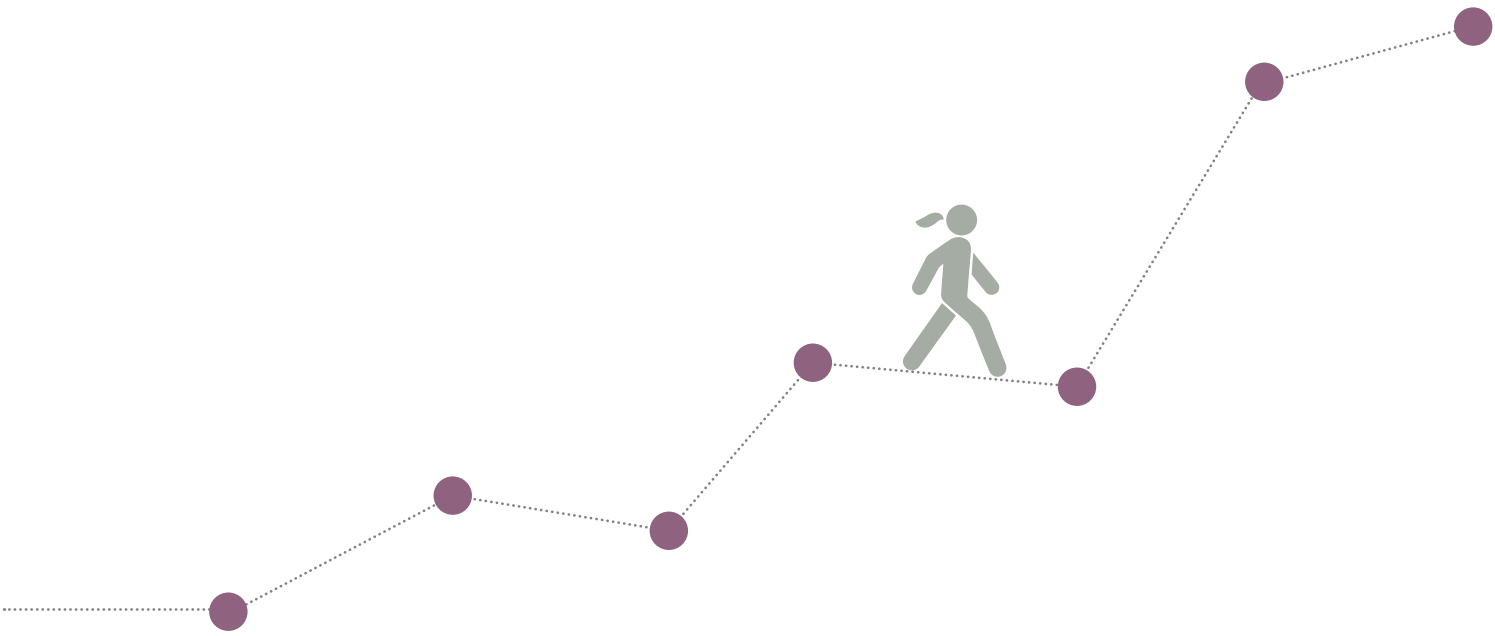


Figure 1-2: Training Needs Assessment

1.1 NEEDS ASSESSMENT

A detailed needs assessment was carried out with officials working in the areas of planning, transportation, engineering, enforcement, and regulation. The assessment included feedback from industry experts to understand the training needs and identify thrust areas for this capacity building programme. The assessment facilitated in identifying capacities, roles, and responsibilities of the officials working at various Urban Local Bodies (ULBs) engaged in achieving Nationally Determined Contributions (NDCs) and Sustainable Development Goals (SDGs).



2

EXECUTIVE PROGRAMME IN SUSTAINABLE TRANSPORT

2.1 OBJECTIVE OF THE PROGRAMME

The objective of the programme is to sensitise participants on "sustainability", associated sub-sectors of urban transport, New Emerging Areas (NEA), their inter-relationships, and implications on sustainability with reference to being safe, accessible, efficient, and "green".

The programme focuses on the adoption of an "user-centric" lens rather than agency-specific measures and developing a "system" focus. The outcome of the workshop is aimed at enhancing the capacities of officials at national / state / city level for achieving SDGs by:

1. Identifying, evaluating, and solving key mobility related sustainability challenges in their respective cities at social, economic, and environmental levels.
2. Recognising the gaps in the existing public transport, walking, cycling, and street systems in their cities.
3. Applying principles of Sustainable Transport, i.e., avoid, shift, and improve.
4. Bringing a change in the outlook towards conventional urban transport approaches and offering sustainable transport solutions to the cities.

2.2 PROGRAMME STRUCTURE

2.2.1 Module I: Active Learning (Virtual)

(22nd February to 5th March 2021)

This comprised of a 6-day online workshop (spread across 2 weeks), with interactive sessions, hands-on exercises, and case discussion. The workshop design emphasised on "learning-by-doing" approach. This was a departure from the usual lecture-style that focuses on presenting technical material. A "hands-on" learning approach was used to bring out the linkages among the different components of the urban transport system with the help of case studies and group exercises.

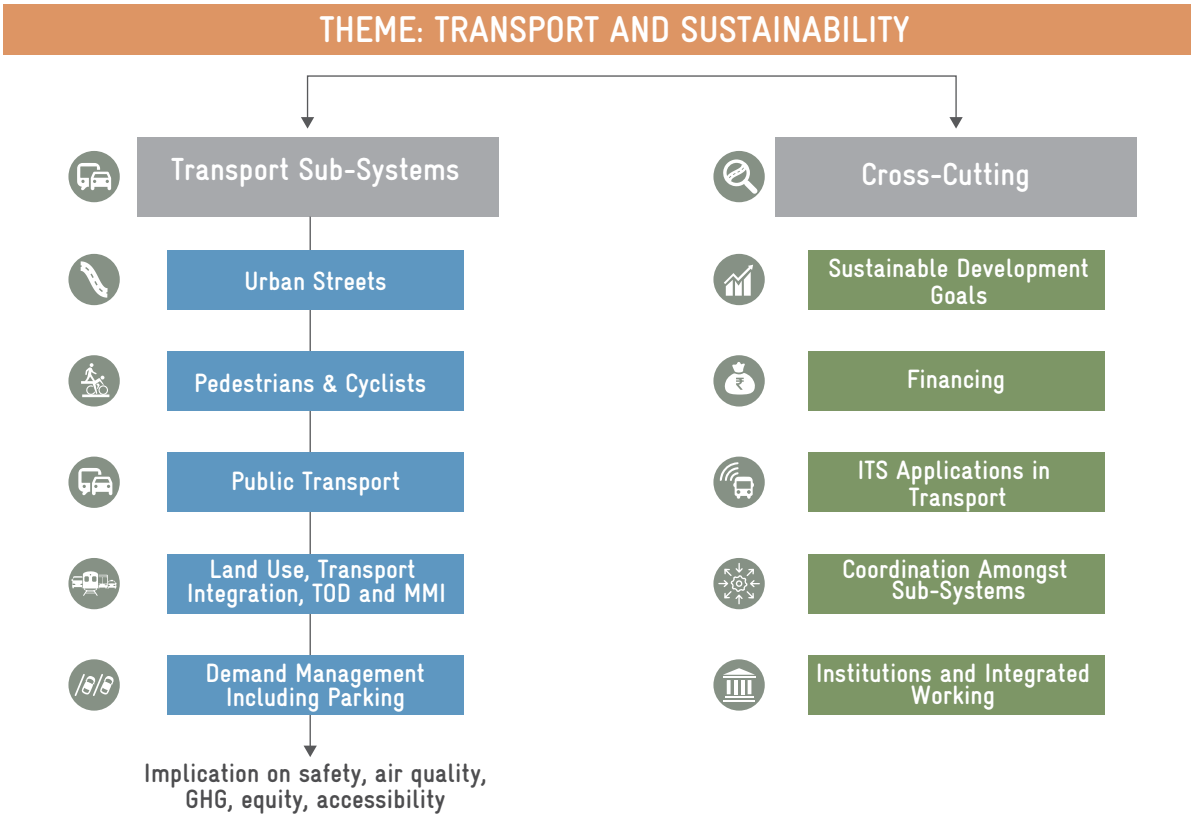


Figure 2-1: Workshop Themes

2.2.2 Module II: Action Learning (Virtual)

(5th March to 30th July 2021)

Participants were required to undertake a sustainable transport project in respective cities. This module focussed on the concept of "learning by doing" through an Action Project defined for their respective cities. The participants were expected to analyse their city's current situation, identify key issues, and draw out an implementable plan for the selected project.

The process involved framing an "actionable project" which would be small, defined, and implementable in their city and pertaining to their area of work with involved multi-stakeholder co-ordination. The support from the experts was provided throughout this module.

2.2.3 Module III: Cross-Learning

This module was designed for participants to learn by getting first-hand experience and interacting with international experts. A study tour to International city to showcase good transportation practices was a part of the learning to broaden outlook and enrich knowledge. For this part of the programme collaborations were explored with various institutes and Universities like:

- Transport Studies Unit, Oxford University, UK
- Technical University of Berlin, Germany
- Technical University of Dresden, Germany
- Technical University of Munich, Germany
- UITP
- TUMI

TUMI was shortlisted on evaluation of their programme structure, willingness to conduct the workshop in the given time frame and experience of GIZ with the organisation.

The participants' eligibility for this part of the programme was made subject to successful completion of the Active Learning and Action Learning modules. *(*and subject to the travel approval amid COVID-19 restrictions, else will be organised using virtual platform.)*

2.3 SELECTING THE COURSE PARTICIPANTS

Applications were invited from the mid and senior level professionals, working in the field of Urban Transport with the specific requirement of at least two years of work experience and upper age limit of 55 years and would have at least five years of service remaining after the completion of course. The list and the necessary documents were sent to the Ministry for approval.

The Ministry of Housing and Urban Affairs received 68 applications for this programme from all over the country. 28 delegates, representing 15 states and 2 UnionTerritories (Gujarat, Maharashtra, Karnataka, Kerala, Delhi, Madhya Pradesh, Chhattisgarh, Mizoram, Rajasthan, Odisha, Jharkhand, Jammu & Kashmir, Delhi, Sikkim, Uttar Pradesh, Himachal Pradesh) were shortlisted based on the following criteria:

1. A statement on motivation to take up the programme.
2. Which aspects of the programme interested them and why?
3. Kind of transport projects they are interested in undertaking as a part of their work.
4. How would this training help them achieve sustainability of transportation in their city?

The selected group had a very balanced composition with participants having worked at various levels, with different backgrounds, age groups, region, gender, and organisations that would help in sharing the knowledge and opportunities at respective levels while working together. The list of selected participants is in *Annexure 3.*

2.4 PARTICIPANTS GROUPS' PROFILE

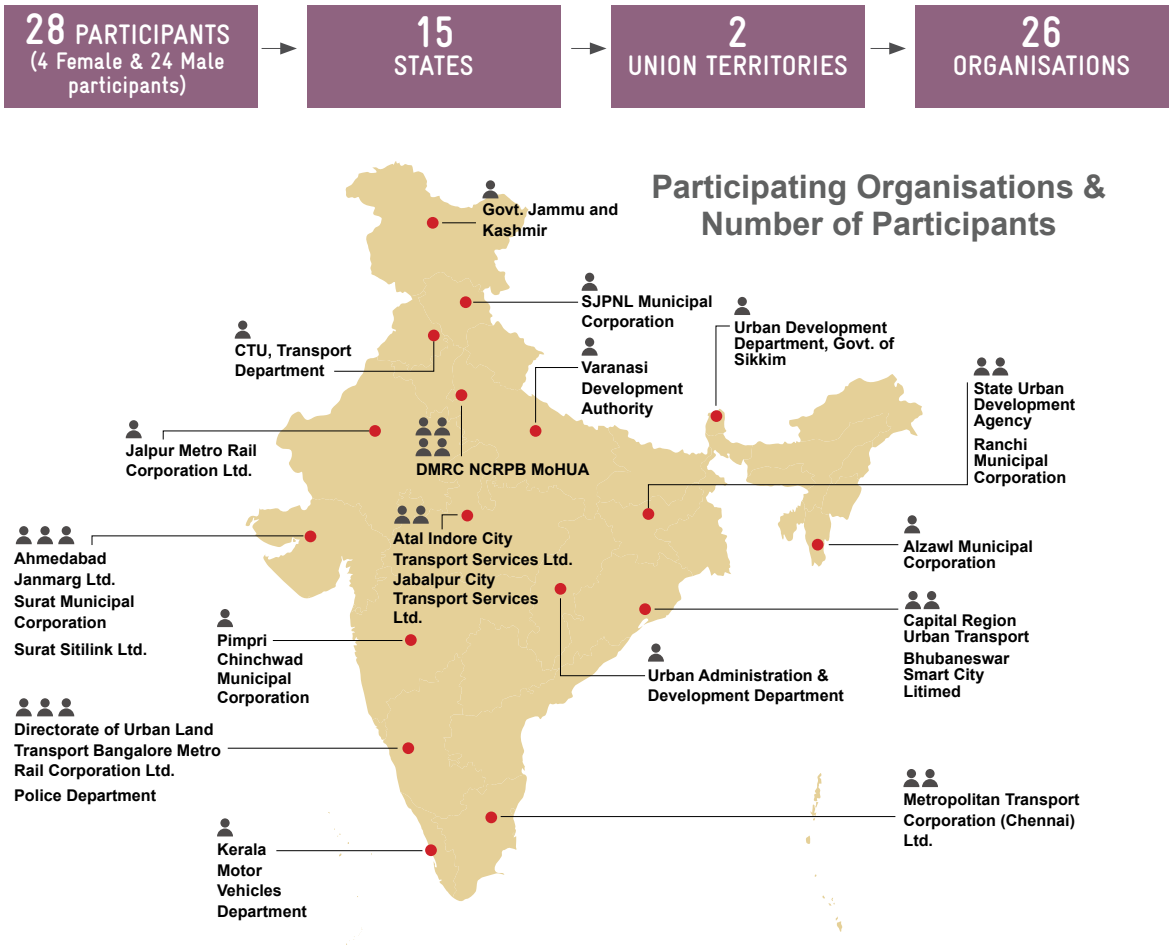


Figure 2-2: Participating Organisations

2.4.1 Participation by agency type

A good mix of participants from different levels, backgrounds and organisations helped in experience sharing and appreciation of challenges and opportunities at respective levels while working together.

Organisations like Government of Jammu and Kashmir, SJPNL Municipal Corporation, CTU Transport Dept., DMRC, NCRPB, MoHUA, Varanasi Development Authority, Urban Development Dept., Govt. of Sikkim, State Urban Development Agency, Ranchi Municipal Corporation, Aizawal Municipal Corporation, CRUT, Bhubaneshwar Smart City Ltd. Urban Administration and Development Dept., MTC Ltd. Chennai, Kerala Metro Vehicles Dept., DULT, BMRCL, Police Dept., Surat Sitilink Ltd., SMC, Ahmedabad Janmarg Ltd., JMRL, were represented during the entire workshop.

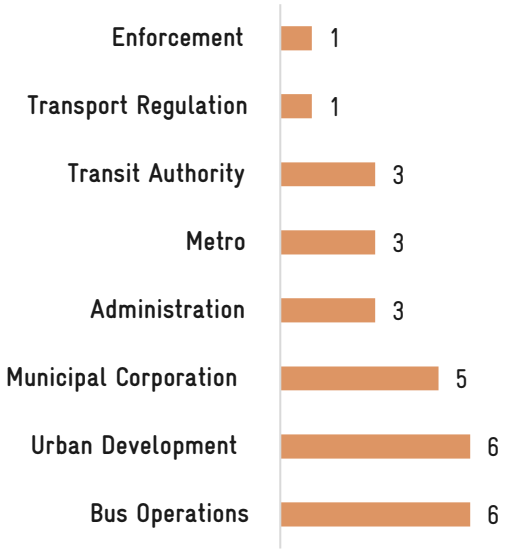


Figure 2-3: Participation by Agency Type

2.4.2 Level of position held

About 18 percent of the participants held senior level positions (work experience more than 20 years), followed by 78 percent as middle level position (work experience between 7–20 years) and 4 percent holding a junior level position (work experience less than 7 years).

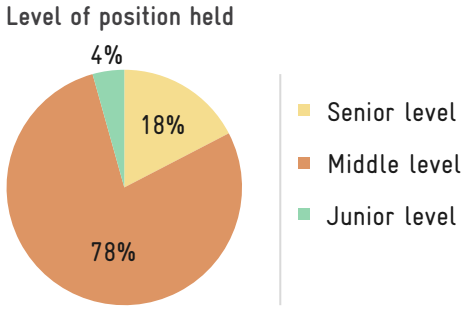


Figure 2-4: Level of Position Held by Participants.

2.4.3 Core specialisation

The participants came from various specialisations. 35 percent of participants were from engineering or technical backgrounds, followed by a 26 percent participation from the planning background.

About 22 percent of the participants had a backgrouns in public administration or policy, and the remaining 17 percent included section officers, architects, or members from enforcement, and operation backgrounds.

As mentioned earlier, the workshop consisted of various interactive sessions. Hence, the participants having different specialisations helped in the work, and in solving issues in collaboration. This enriched the perspectives in the group.

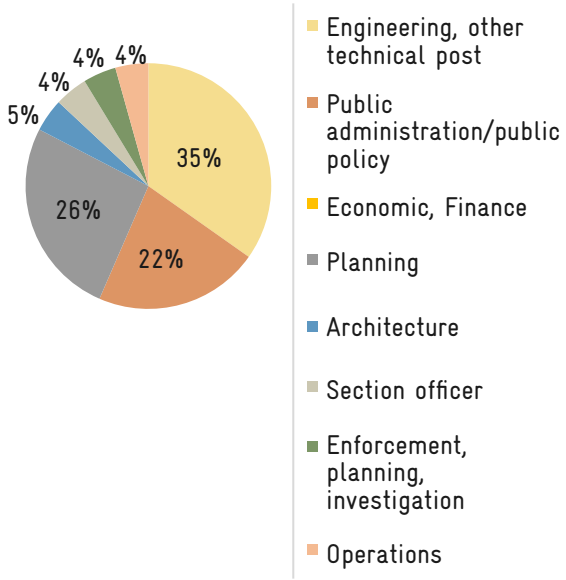


Figure 2-5: Core Specialisation of Participants

3

PHASE 1:

THE ACTIVE LEARNING WORKSHOP

This report focuses on the first part of the programme, i.e., Active Learning workshop.

Active Learning modules were structured across six days and was delivered through a mix of presentations, hands-on exercises, site visits in respective cities, case discussions and group work. The Active Learning module aims to sensitise participants from different domains of transportation to understand the interrelationships between them. For the active mobility and public transport sessions, the focus was on experiential learning where participants would be expected to make site visits for first-hand experience and observations.

3.1 STRUCTURE OF THE ACTIVE LEARNING MODULE

As mentioned earlier in Section 1.1, a training needs assessment was carried out with the authorities and the following topics were decided based on the assessment and further discussion with GIZ and the Ministry.

Day 1: Urban Context and Sustainable Mobility Equity and Gender	
Day 2: Planning for Urban Street and Active Mobility	
Day 3: Public Transport Planning Gender Mainstreaming	
Day 4: Multimodal Integration	
Day 5: Demand Management - Parking Intelligent Transportation System	
Day 6: Financing Transportation Institutional Integration	

The detailed agenda of Active Learning is in Annexure 1.

3.2 PEDAGOGY

Due to the ongoing pandemic Covid-19, the workshop was held online over a virtual meeting platform, with every effort to replicate and even surpass a classroom environment. This presented an opportunity to follow social distancing norms while still providing engagement and educational experiences. All the participants were provided with a demo of online application MS Teams, Miro boards and Streetmix, before the workshop. The participants were given reference materials for each day's theme in advance.

- MS Teams – online platform used to conduct this event
- Mentimeter tool – interactive polling tool
- Streetmix – interactive tool which can be used to design street sections
- Miro boards – used to create, collaborate, and centralize communication

3.3 APPROACH

The workshop design emphasised on "learning-by-doing" approach. This is contrary to the typical lecture-style that only focuses on presenting technical material. The content was designed and tailored to meet the learning needs of mid and senior manager and policy makers who are involved in planning, operations, implementation of urban transport. The learning needs for this workshop included:

- Developing an understanding towards sustainable transport.
- Identifying gaps in existing transport system using tools and technique for diagnostic.
- Formulating strategies geared towards a wholistic solution.

Interactive sessions through discussions and hands-on exercises were conducted and participants discussed their experiences especially those where they were actively involved. A "hands on" learning approach was used to highlight the linkages among the different components of the urban transport system with the help of case studies and group exercises. The participants were actively involved throughout the workshop and participated in debates regarding the transport cases based on real urban transport problems, such as formalising bus providers, gender safety in PT, multimodal integration, use of public-private partnership (PPP) etc., presented by respective speakers.

The participants were divided into groups for carrying out exercises. They practised judgement and exercise to balance various issues to reach a plausible course of action through debate with other fellow participants. At the end of respective sessions, presentations were made by the group members on the exercises to a jury of experts who provided feedback on the proposed solutions.

3.4 THEMES

This section highlights the day-wise theme, topics covered, and the questions raised during various group exercises.

Day and Theme	Key Questions Addressed
Day 1: Context Setting and Sustainability General introduction and Importance of Sustainable mobility.	• What is sustainable mobility? • What are the main challenges in India? • How can sustainable mobility address conflicting needs of citizens?
Day 2: Active Mobility Planning for streets and public spaces and convincing the mayor to support.	• Common concerns for pedestrians and cyclists. • How to advocate for support for active mobility projects? • What are the common concerns for pedestrians and cyclists? • How to convince your mayor to support active mobility projects?

Day and Theme	Key Questions Addressed
Day 3: Public Transport PT planning in Indian cities, expectations from a good PT system, Understanding user perspective in PT, Gender mainstreaming	• For developing a metro or any PT mode in the city should there be a minimum population criterion? Min network length criteria in Phase 1? • What do public expect from a good transport system? • What are the mode choices dependent on? • Strategies and solutions to improve the PT systems of the city and gender sensitivity issues.
Day 4: Multimodal Integration Integrated Transport presentation and case discussion and assessing MMI maturity levels.	• Why is multimodal integration important? • What are the various levels of integration? • How can you assess the extent of integration achieved for any city? • How to prioritize strategies identified?
Day 5: Demand Management Demand management measures (Parking management) and Application of data and ITS for decision making.	• What are the problems faced in Indian cities due to improper management techniques? • Possible solutions for these problems. • Impact of more space to mixed traffic lanes. • Uses of ITS data sets for daily operations.
Day 6: Institutional and Financing Mechanism Financing Transport and Institutional Integration.	• Are the authorities responsible only for PT or should its responsibilities cover everything else, such as roads, paratransit etc.? • PT with statutory backing or executive orders. • How much finance is needed and where it should come from? • What are the aspects that make or break a PPP project?

3.5 RESOURCE PERSONNEL

The sessions were led and delivered by a team of 42 renowned personnel, including speakers and facilitators from CEPT, GIZ, TUMI, IUT and various subject experts. Notable amongst them were:

Dr. O.P Agarwal	Chief Executive Officer, WRI India
Mr. S.K. Lohia	MD & CEO, IRSDC
Prof. H.M. Shivanand Swamy	Director, CoE-UT, CRDF
Prof. Dr. Sanjay Gupta	Dean (Research) and Professor (Transport Planning), SPA, Delhi
Ms. Anumita Roy Chowdhury	Executive Director, Research and Advocacy, CSE
Mr. Vivek Ogra	Partner, Mobility, PwC India
Mr. Gautam Patel	Director, Co-ordinates Infrastructure Consulting
Dr. Shalini Sinha	Executive Director, CoE-UT, CRDF
Dr. Nitika Bhakuni	Associate Director, CoE-UT, CRDF
Mr. Laghu Parashar	Deputy Project Head, SMART-SUT, GIZ India
Ms. Andrea Bluemel	Senior Advisor, SMART-SUT, GIZ India
Mr. Linus Platzer	Transport Policy Advisor, TUMI
Ms. Kanika Kalra	Former Urban Transport Expert & Acting Director (KMC), IUT
Mr. Adarsha Kapoor	Principal Urban Designer
Ms. Sonal Shah	Gender Consultant

4

WORKSHOP PROCEEDINGS

4.1 INAUGURAL SESSION

The inaugural ceremony was held on 22nd February, 2021 and was attended by Shri. Jaideep, OSD (UT) & E.O. JS, MoHUA as the Chief Guest. Prof. H.M Shivanand Swamy, CEPT University, Executive Director, CoE-UT, CEPT University welcomed the participants and briefed them about the programme, followed by Mr. Juergen Baumann who introduced the participants to the SMART–SUT, GIZ and TUMI. Ms. Ulrike Reviere, Country Director, GIZ highlighted various programmes and initiatives of GIZ for sustainable transport to address the problems faced by Indian cities. Further, Mr. Laghu Parashar - Deputy Project Head, SMART-SUT, GIZ India presented the capacity building efforts and highlighted the role of the training programme in the process.

In his inaugural speech, Shri Jaideep, OSD UT & E.O.JS, MoHUA informed the participants on MoHUA's initiatives for reducing the personalised motorised vehicles and supporting the cities to build resilient environments that are safe, sustainable, and affordable. He further insisted that to achieve this goal the country needs skilled people. He highlighted the purpose of the programme to improve job related skills, sensitise participants to new emerging sectors of transport. Lastly, he commended the efforts made by GIZ and CEPT in delivering the well-structured modules on urban transport planning and management. He also updated the participants that in future more such programmes will be conducted.

Figure 4-1: Snapshot of Inaugural Session - Day 1

4.2 DAY 1: CONTEXT SETTING AND SUSTAINABILITY

Day 1 of the Active Learning workshop started with the general introduction on need and objective of the workshop by Mr. Laghu Parashar followed by the Inaugural session.

Session 1 started with a warm-up where the participants engaged with MCQ & open-ended questions focusing on their personal experience and prior knowledge of urban transport & sustainability through online tool "Mentimeter". Session 2 started with a short input presentation by Prof. Swamy on Urban context & land use Transport Integration, followed by another short input presentation by Ms. Andrea Bluemel on Gender Mainstreaming. Soon after that the participants were involved in group work on "Why sustainable mobility?" This session was facilitated by Mr. Adarsha Kapoor, Mr. Linus and Mr. Robert (TUMI). During this session the participants were divided into five groups to explore the explore the context and relevance of sustainable mobility.

The agenda of Day 1 was to familiarise the participants with the programme, the facilitators, and their fellow learners, and also to make them understand the importance of sustainable mobility which was imparted by the interactive session. In this regard the participants made use of the online tool "Miro board" to write sticky notes and each group addressed one specific aspect of sustainable mobility with a few questions.

Key Highlights:

- Discussions on issues faced due to lack of use of PT, NMT etc.
- Active participation of participants in group exercise to understand the importance of sustainable transport, and its benefits to the society on a large scale.
- Conducted a pedestrian audit along the stretches to understand the needs of various road users.

Learning Outcomes:

- Exposed the participants towards the importance of sustainable transport and the challenges faced by Indian cities and introduced them to positive trends in sustainable mobility.
- Sensitised the participants towards the importance of promoting sustainable mobility to bring the necessary changes.

1. How many people live in your city?

4 — < 1 million

9 — 1-6 million

1 — 6-10 million

5 — > 10 million

Which is, in your view, the most efficient mode of transport?
(Bus, Metro, Taxi, Uber, Rickshaw, Personal Car, Walk, Bicycle)

Bus | Metro | Taxi | Uber | Rickshaw | Personal Car | Walk | Bicycle

Day 1: Group 3 - Prof. Dr. Sanjay Gupta and *Mr. Jignesh Panchal*
Urbanisation: growing cities

India Related Challenges?

Traffic road design pollution	Skewed urbanization patterns	Absence of job opportunity leading to migration	Limited resources
Universal accessibility	Population size (rapid increase in population) Urban sprawl		Poor imple-mentation of plans
Design standers Absence of clarity for sustainable modes	Road safety	Absence of institutional mechanism	Absence of infrastructure

Positive

Growing economy	Potential for private sector market	Master has been prepared, but not implemented fully	Focus on improving mobility (walking)
Potential for low-cost mobility modes	Technical expertise – more innovative solutions	Relatively low motorization	Capacity building workshop by the govern-ment
Cheap labour cost – cost of operations and delivery is rela-tively cheaper than other developed countries	Emphasis on BRTS and NMT, shared mobility	Emphasis on metro – provided ridership on corridor	New and innovative startups for transport system/ app-based services

Negatives

Inadequate fund	Rapid increase demand of transport system	Limitation of transport project due to built up	Absence of medium transport capacity – tram
Pollution and safety	Poor quality of life	Upgradation of skills (capacity)	Limited scope for development and innova-tive solution in developed area
Dense cities	Encroach-ment on road	No policies on controlling vehicle growth (vehicle registration)	More research focus on sustainable transport

Important Aspects, Change Opportunities

City planning should be transport oriented	Special funds for operations from govt.	High fund allocation towards sustainable transport	High penetration of private company by providing special packages
Creating UMTA for cities	Extensive use of ITS for transport system planning	Integration in transport modes	More stakeholder consultation
Adopt integrated transport planning	Smart city – leads to innovative solutions		

Discussion Questions:

1. What are the main challenges in India? How can sustainable mobility address the following aspect? How do they influence each other?
2. What trends in sustainable mobility are positive and should be strengthened, which negatives ones should be countered and avoided?
3. What do you see as the most important reason for promoting this aspect of sustainable mobility? What are the most promising ways to change?

Figure 4-2: Outcome of group exercise - Day 1: Session 2

Day 1 ended with de-briefing for the site visit to undertake sample street audit. The participants were divided into five groups with the respective street audits to be carried out.

1. Market street
2. Residential street
3. Arterial road or major junction
4. Street
5. Institutional area

Day -1 Details of the exercise and feedback for the day is provided in annexure volume 2.

4.3 DAY 2: PLANNING FOR URBAN STREETS AND ACTIVE MOBILITY (WALKING AND CYCLING)

Topics:

- Discussion on common concerns faced by pedestrians and cyclists – site visit.
- Planning of streets and public spaces for better walking and cycling conditions.
- Rhetorical exercise: How to convince your mayor to support active mobility projects
- Participants presenting arguments in plenary.

Day 2 started with a short discussion on existing walking and cycling environment by Mr. Adarsha Kapoor and Mr. Kasinath. They also discussed the outcomes of the site visits participants had conducted on the previous day, followed by Group Exercise (participants were divided into five groups) on identifying the common concerns for pedestrians and cyclists. where they also added points from their site visit. Results of group work were presented soon after the session. Session 2 consisted of a short presentation on methodology and approaches to planning of streets and public spaces for better walking and cycling conditions followed by Group exercise 2 – making use of online tool Street mix. Session 3: Rhetorical exercise: How to convince your mayor to support active mobility projects. This session focused more on the strategy and implementation of (active) mobility planning. This included a presentation by Adarsha Kapoor on policies and planning responsibilities for identifying certain interventions.

Key Highlights:

- The idea of the public space (and streets as public spaces) was discussed and reshaped to gain importance of active mobility in public spaces.
- Participants discussed the actions and design interventions which need to be taken to make the streets/public spaces walkable/ cyclable, based on experience of site visit.
- Participants developed an equal cross section based on the chosen site with Streetmix.
- Each group briefly pitched their best arguments to the audience, which favored the implementation of active mobility planning.

Day 2 Details of the exercise and feedback for the day is provided in annexure volume 2.

Day 2: Session 3
Group 1: Ms. Kanika Kalra and *Mr. Khelan Modi*
Topic: Collect and prepare best arguments in groups

Why should the Mayor / transport leader / commissioner favor the implementation of active mobility planning?

Benefits to larger group	Pilot project to demonstrate	Make local vendors/unions as stakeholders - Footfall would increase	Decentralized parking spaces to minimize the walk
Campaign about project - would get benefit of this	Vendors - given dedicated space	Street to be addressed as a vibrant open space	Enhancing PT would also reduce parking demand
Regulatory framework for users and goods	Address to all doubts in the mind of stakeholders and address them		

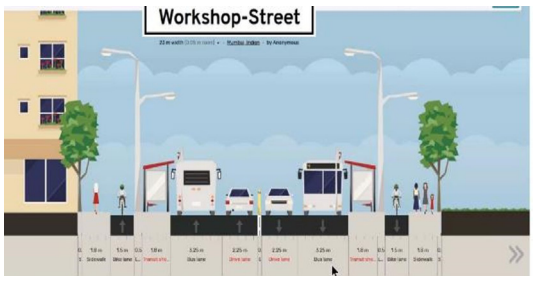


Figure 4-3: Outcome of Group Exercise - Day 2: Sessions 2 & 3

Day 2: Session 1 - Residential Street
Group 2: Mr. Amegh Gopinath and *Mr. Suraj Sunil*
Topic: Common concerns for pedestrians and cyclists

What made the walking environment safe and comfortable?		What made the walking environment unsafe and uncomfortable?		Could you find continuous barrier free walking space? If not, what kind of obstructions were observed?		Would you like to take the same walk again, and why? If not, why?	
Had shoulders and footpaths with trees	Due to high traffic, walking and cycling was not friendly	No proper footpath, no signages, no zebra crossing with obstructions and potholes were open	DIdn't have dedicated cycle lanes	Utilities were not properly laid	People mostly walked, but no good infrastructure was provided	During traffic hours, it does not feel safe to walk or cycle	No street lights
		Footpaths were not continuous, had obstructions, not well-maintained	Viman Nagar-was not in a good shape for walking and cycling	Parking is a major obstruction	Unorganised street vending, signage poles: nothing was segregated	No sur-veillance cameras on streets	User-friendly footpaths and cycle lanes but no dedicated NMT infrastructure
		Walking area is not comfortable, surface is undulated		Property encroachments were hindering the footpath		Women-safety issues, fear	Huge tree plantations, no Lux of street on footpaths

Figure 4-4: Outcome of Group Exercise - Day 2: Session 1

Learning Outcomes:

- Skill enhancement towards diagnosing issues related to active mobility and knowledge towards planning such facilities keeping in view the implementation challenges.
- A rhetorical exercise helped participants in building strong arguments to support sustainability initiatives, while convincing the authorities for funding.

4.4 DAY 3: PUBLIC TRANSPORT (PT) AND GENDER MAINSTREAMING:

Topics:

- PT planning and operations in Indian cities
- Discussing the expectations from good public transport system through the case studies.
- Understanding user perspectives in PT.
- Gender mainstreaming.

Session 1 – Understanding the context of PT for Indian cities. The session focused understanding the context of the Indian cities with respect to PT. This included a presentation by Prof. Swamy on Public transport planning and operations in Indian cities - overview (Bus and Metro statics of Indian cities).

Session 2 – What to expect from good public transport system case videos and discussion was facilitated by Dr. Nitika Bhakuni. The session focused on initiating a dialogue with participants on what is their expectations from a good PT. For which a set of good PT in Indian cities videos were shown to the participants. Videos of the cities such as Ahmedabad, Surat, Delhi, Bhubaneshwar and Hubli.

Would you recommend a child in the age group of 10-15 years to walk independently on this street? What features of the road made it safe or unsafe for children?		Would you recommend women in your house to walk on this street alone? What features of the road made it safe or unsafe for women?		Would you recommend a senior citizen to walk there? If not, why? What features of the road made it safe or unsafe for senior citizens?	
Not preferred for children to walk independently	Uneven footpaths, traffic flow	No street lights	No surveillance cameras	Footpath height an issue	Fast traffic flow
No dedicated footpath lanes	Width– 2-2.5 m. No continuous footpath lanes	High plantation areas	Helpline numbers, police friendly groups, help centres	Street lights lux-levels are low or not available	No street furniture for senior citizens to rest
Heavy movement of traffic an issue	Obstruction to the crossing, visibility an issue	Helpline boards and displays, helpline numbers, helpline contacts	Every helpline at every 100 m sections, cctv surveillance, theft cases prevention	Rest areas infrastructure	
Required footpath height is not friendly					

Session 3 – Understanding user perspectives in PT. The session was facilitated by Dr. Shalini Sinha who concentrated on type of PT users, their perspectives and importance of their perspective in planning a PT, for a better clarity on user's perspective in PT a group exercise was developed.

Session 4 – Understanding user perspectives in PT. The session began with the recap of the previous session on gender mainstreaming on Day 1 by Ms. Andrea Bluemel. It provided a brief understanding on "Women and Transport" which highlighted the key issues faced by women while traveling in PT and the important things to be considered while planning for the same.

Key Highlights:

- The questions related to metro planning for a city were discussed, who should invest in capital infrastructure of bus transport services.
- Participants shared their experiences from their respective cities, projects etc. and stated their expectations regarding good PT.
- Participants chose one situation alternative out of four of and discussed the reasons for the PT choices in the group exercise.
- Participants brainstormed the strategies and solutions to improve the PT systems of the city with respect to each gender's perspective.

Day 3: Session 4
Group 1: Ms. Andrea Bluemel and *Ms. Madhura Kawadkar*

G 1: Access to and from the public transport stop

Key Issues	Strategies and Solutions			
What are the key issues faced by women and girls when travelling to and from public transport (especially with regards to walking and cycling)?	**Strategies to Resolve the Issues** **How can access to and from public transport be improved for women and girls (during the day and the night)?**	**Agencies Involved** **Which agencies/ departments will you need to coordinate with for implementation?**	**Action Plan** **Which actions can be implemented** **1. Immediately or within 1 year,** **2. Short-term (1-3 years),** **3. Medium-term (3-5 years)**	**Finance Requirement** **What are the additional finances required for implementation (if at all)?**
Lack of infrastructure, encroachment	CCTV cameras at several intervals, vendors, eyes on streets, creating vibrant spaces to make it feel safer	Municipal Corp. Hawkers associations	Immediately: Lighting, signages, cleanliness, CCTVs	Converting the scheme like “Nirbhaya”
Street lighting, CCTV cameras	Streets need to be cleaned up throughout the day and night	Development authorities	Short term: Pathway improvement, pink autos, community involvement, NGOs, deploying women security	NGOs
Poor walking surface, no security on streets	LMC like pink autos, to feel safer	Traffic police	Medium term: PBS, planning vending zones, building regulations in terms of providing frontage for the same purpose	Give street to advertising agencies, and UTF
Lack of signages, hygienic walking condition	Infrastructure improvement like FP, Street lightings, proper signages	City transport companies, Smart city companies	LAPs, boundary transparency to avoid deserted streets	Own resources, company, dedicated funds for capacity building and voluteering
LMC issues?	PBS, to be next to FP	NGOs working with women safety and security	CMP for the city can bring such strategies to provide safety and security	
Boundary walls with no transparency	Pink booths, psychologically feels safe to walk, lady officers should be deployed instead of general force	Auto unions		

Figure 4-5: Outcome of Group Exercise – Day 3: Session 3

Group 2: Travel alternatives between two different PT modes (metro / bus / IPT)

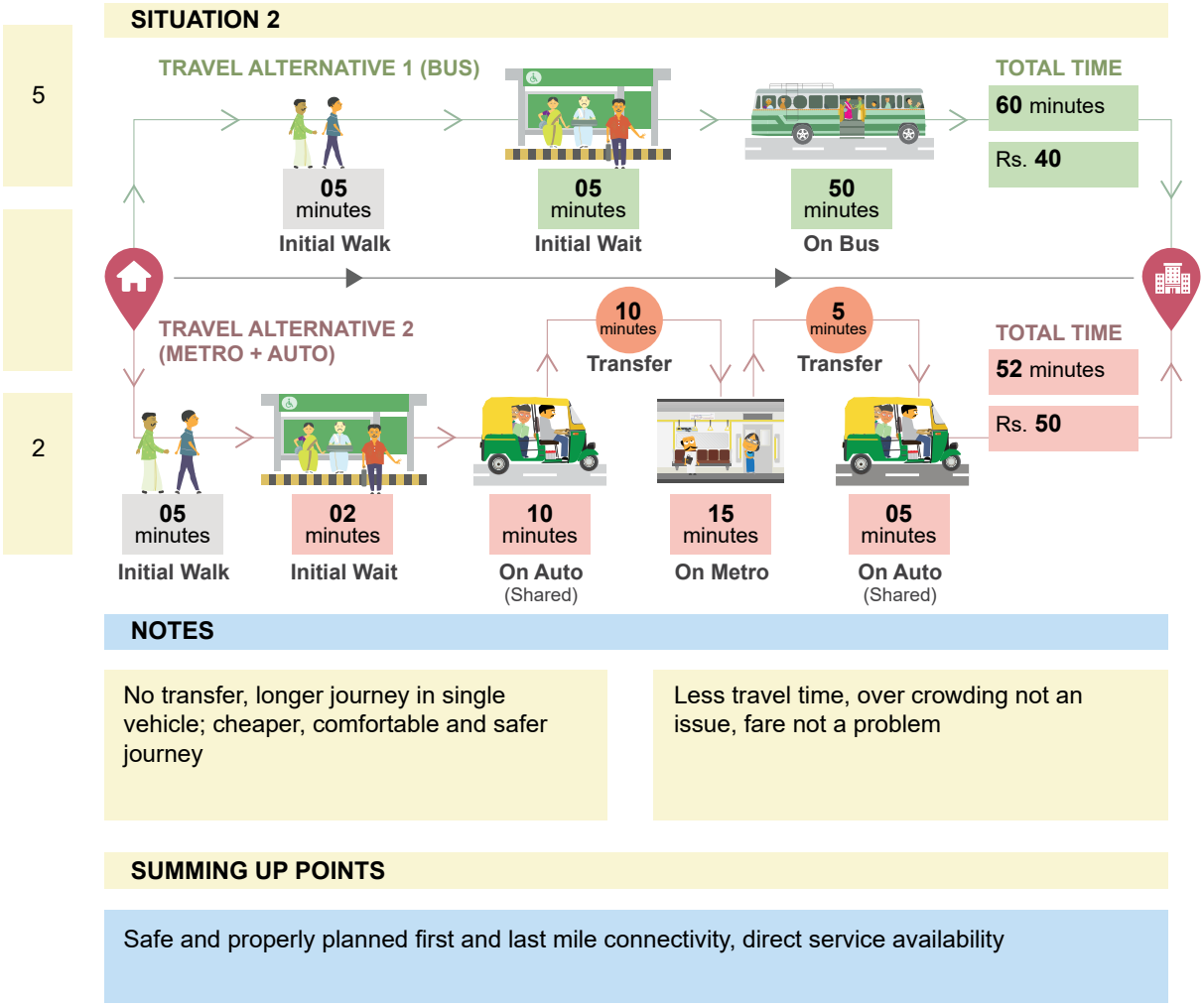


Figure 4-6: Outcome of Group Exercise – Day 3: Session 3

Day - 3 Details of the exercise and feedback for the day is provided in annexure volume 2

Learning Outcomes:

- Appreciation towards strategic planning approaches for city public transport and investments.
- Enhanced understanding towards the importance of incorporating user persepectives in planning and implementing the complete journey chain for sustainable transport systems.
- Sensitisation towards gender mainstreaming and building the capacities to implement projects that are gender sensitive.

4.5 DAY 4: MULTIMODAL INTEGRATION

Topics:

- Integrated transport presentation and case discussion.
- Assessing MMI maturity levels.

Session 1 was facilitated by Mr. S.K. Lohia. It focused on transport integration of various modes, and how they can be achieved at different levels - such as network and service integration, physical integration, fare integration, institutional integration, and information integration. and information integration. For Session 2, a tool, MMI Maturity Matrix was developed

by CEPT and GIZ to assess the maturity levels of transport systems in Indian cities. This could help city authorities to align with city objectives and enable realistic targets.

Key Highlights:

- The participants performed hands-on exercise using the MMI Maturity Matrix – an assessment tool for Indian cities to gauge maturity levels of transport systems.
- Discussion and final jury: Shri Jyothilal KR (Principal Secretary Transport, Govt. of Kerala) - guest.

Day - 4 Details of the exercise and feedback for the day is provided in annexure volume 2.

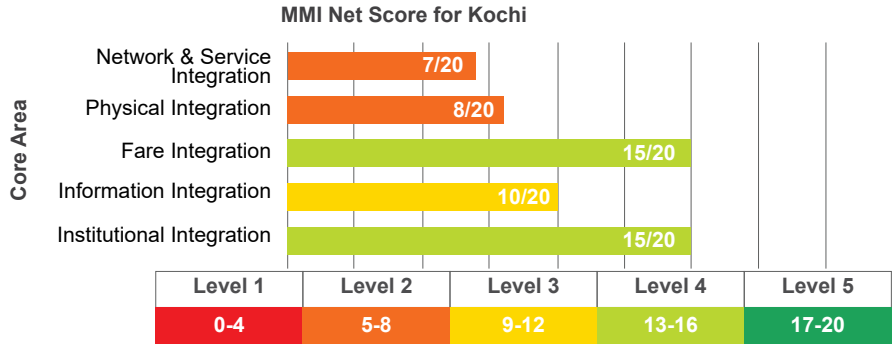
Learning Outcomes:

- Enhancing the knowledge on multimodal integration in its role in the seamless connectivity for users.
- Knowledge enhancement on the tool to assess the multimodal integration level in the city and assess the strategies adopted along with prioritization of actions for improvement.

Multi-Modal PT System

Integration Area Chart

Kochi Scenario 2 City MMI Score: 43



Elements	Level 1	Level 2	Level 3	Level 4	Level 5
Network and Service Integration					
1. Planning of routes and services					
2. Service headways and schedule coordination					
3. Accessibility					
Physical Integration					
4. Proximity of transit stops					
5. Accessibility within the interchange zone					
6. Last mile connectivity to the interchange zone					
Fare Integration					
7. Fare policy/structure					
8. Fare technology					
Information Integration					
9. Information availability for commuters					
10. Wayfinding					
11. Customer care					
Institutional Integration					
12. Decision making process					
13. Data at organization level for operational facilitation and integration					

Figure 4-7: Outcome of MMI Maturity Matrix - Day 4: Session 2

Figure 4-8: Discussion and Final Jury: Shri Jyothilal KR as Guest

4.6 DAY 5: DEMAND MANAGEMENT AND ITS

Topics:

- Demand management measures (parking management)
- Application of data and ITS for decision making.

Day 5, facilitated in understanding various Demand Management measures with the special focus on parking policy to overcome the issues faced by Indian cities today by Ms. Anumita Roychowdhury. In addition, the focus for the day was also on "Application of Data and ITS for Decision making" followed by hands-on exercise on ITS. The session was facilitated by Mr. Vivek Ogra. It covered various aspects related to context of ITS on-mobility ecosystem, providing an overview of ITS applications, native modules (transit and traffic), data usage, ITS maturity assessment, challenges faced by administration and road for implementation of ITS project.

Key Highlights:

- Presentation and discussion by Ms. Anumita Roychowdhury focusing on the current issues of parking, policies, and Govt. initiatives.
- Participants demonstrated the usability of ITS data sets and data based making techniques for daily operations in the group exercise.

Day - 5 Details of the exercise and feedback for the day is provided in annexure volume 2.

Learning Outcomes:

- Helped the participants in identifying various problems occurred due improper management of transport infrastructure such as increase in width of the road (supply) leads to increase in more no. of vehicles (demand) and approach towards the parking management.
- The ITS group exercise provided the participants with the knowledge of Operational Efficiency and how to Maximize the commuter satisfaction.

Details of Exercise	Possible usefulness of the ITS data for effective administration as an authority/owner of the public transport system					
1. Exercise Objective: To create a use case which should demonstrate the usability of ITS data sates and data based decision making techniques for daily operation. **2. Key Outcomes:** Operational Efficiency maximising commuter satisfaction **3. City Profile:** Area 1500+sq km. Technologically advanced multiple mode of transport with good intercity connectivity (Metro, City Bus, BRTS) Population 7.8 million **4. ITS Data Sets available for reference:** Refer to the Annexure shared	**Day 5: Session 2** **Group 3: Mr. Rushin and *Mr. Ramit Raunak*** **GROUP 1**					
	URBAN LOCAL BODY (City Council, Municipal Corporation)					
	To find possible areas of encroachment and illegal parking from bus speed data	ITS will help ULBs to provide the infrastructure where footfall is highest observed.	Possible future Mass Transit Corridors from PHPDT data.	Broadcast information and feedback survey through web-application. Eg. Swachha Servekshan	Speed governors, monitoring the driver's health, activities and efficiency. Safeguarding the welfare of drivers	Management of last mile connectivity and their integration with the PT modes
	PUBLIC TRANSPORT OPERATORS (Metro, BRTS, City Bus Authorities)					
	Route-wise fare evasion issues	Direction-wise route-wise peak and off peak assessment	Possible trip curtailment during off-peak hours from AFCS	Dead km optimisation, blacklisting drivers with most violations. Depot management system.	Geo fencing can help in prioritising NMT and PT	Re-routing of transit in situation of a fire or similar event
	LAW ENFORCEMENT DEPARTMENT (Traffic Police Departments)					
	For issuing the challan, incident management	Enforcement of laws for all users	Help to disseminate information to all relevant authorities	Tackling VVIP movement and improving efficiency of the same	Capturing of street activity to identify theft/crime events	Strict enforcement of towing for illegal parking in the city

Figure 4-9: Session 1 Presentation and Outputs of Group Work Session 3

4.7 DAY 6: INSTITUTIONS AND FINANCING MECHANISM

Topics:

- Financing transport
- Institutional integration
- Introduction to action learning module and next steps

The final day focused on the three levels of integration, i.e., physical, operational, and institutional and their role in enabling a comprehensive and coordinated transport system. It stressed upon the role of policies in facilitating these integrations and innovative funding mechanisms to aid transport projects. It also covered the various models of PPP and financing of transport in Indian cities.

The day began with the presentation on

PPP and financing of transportation by Mr Gautam Patel and Mr. Laghu Parashar where they went over the basic concepts of PPP, Models of PPP in India, and its variants, how cities have adopted the same and their experiences and the enabling environment and 5 pillars for PPP. This was followed by the group exercise 1 - discussion in five breakout groups followed by presentation and feedback from experts.

Dr. Agarwal presented various aspects of institutional integration focusing on the key issues in setting up of institutions as legal basis, jurisdiction, functions, management structure and accountability, leadership of the institution & financing.

Key Highlights:

- The participants were divided into 5 groups such as Policy and Regulatory Framework, Funding, Contracting, Infrastructure and Institutional.
- Participants provided weightage to the 5 pillars / parameters.
- Examples from different cities like London, Vancouver, Paris, and Singapore were provided to explain the roles of each of the above in integrating the systems and options for Indian cities.

Day - 6 Details of the exercise and feedback for the day is provided in annexure volume 2.

Learning Outcomes:

- Knowledge enhancement towards various aspects should be considered while planning PPP project.
- Participants can appreciate the importance and complexities of institutional integration. The various models that can be explored and the challenges in implementation of the same.

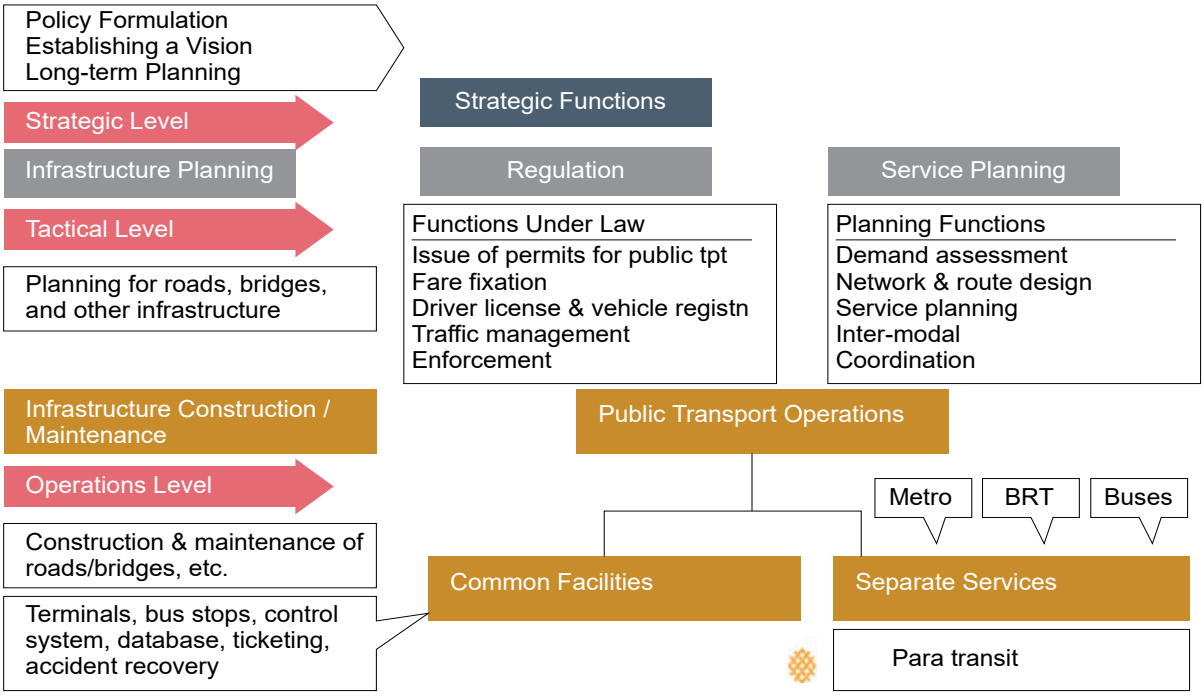


Figure 4-10: Institutional Integration by Dr. O.P. Agarwal - Day 6

4.8 CONCLUDING SESSION

The concluding session was held on 5th March 2021 and was attended by Shri. Jaideep, OSD (UT) & E.O. JS, MoHUA as the Chief Guest. He mentioned about the MoHUA's focus on innovative methods to improve the learning process, further expanding the scope and benefits of collaboration, and introducing new tools that can lead to more effective development at national/state/city level.

Figure 4-11: PBS Guidebook Prepared by GIZ

He also introduced the second phase of the programme, i.e. The Action Learning Project. He mentioned that the ministry was looking forward to hearing from all 28 officials as to what their experiences were and the outcomes they achieved through the active and action learning programme at UMI 2021 Conference in Oct 2021. In the end he commended the efforts made by GIZ, CEPT, TUMI and IUT for delivering the well-organised workshop. Lastly, he mentioned that MoHUA would continue with such training programmes in future too.

As part of the concluding session, OSD (UT) & E.O. JS launched a Research guidebook prepared by GIZ on Public Bike Sharing (PBS) in India named "Evolution of PBS Systems in India". Mr. Laghu Parashar, Deputy Project Head, SMART-SUT, GIZ India, requested for comments and views from the participants regarding this guidebook.

The concluding session ended with a vote of thanks by Prof. Shivanand Swamy and Mr. Juergen Baumann.

Figure 4-12: Snapshot of Participants and Resource Persons - Concluding Session - Day 6

5

PARTICIPANTS' EVALUATION AND FEEDBACK

It was of immense importance to capture the feedback of this one-of-a-kind online workshop as this would not only help in targeting the key issues of urban transport but also provide a scope to identify areas that could be improved during future training sessions. Hence, to make the workshop effective for the participants the feedback was collected in the following ways:

1. **Daily Written Feedback:** With respect to each day's theme, at the end of the day, the participants were asked to fill out a questionnaire evaluating the sessions held. They were asked questions like how much of the information learnt was new to them, key takeaways for them from that day, their understanding about the topic, what were they likely to implement from the learnings in future, etc.
2. **Final Written Feedback:** On the last day of the workshop, the participants were asked to complete an evaluation questionnaire about the design and roll-out of the workshop 23 of 28 participants or (83 percent) participants responded and completed the questionnaire.
3. **Verbal Feedback:** In addition to the above, verbal feedback was also sought at the end of the programme where participants both spoke and wrote about their experiences during the online meeting.

Feedback questionnaires for 1 and 2 (above) have been provided in annexure volume 2.

The above feedback mechanism not only captures the success of the programme but is also very useful in reflecting on what went well and what areas need improvement for the next offering. The respondents' feedback on the evaluation questions and respective findings have been presented with in the chapter covering the workshop proceedings.

5.1 HIGHLIGHTS OF DAILY FEEDBACK

Overall Evaluation

The graph below (Figure 5-1) is the day-wise average rating of overall experience of participants on a 5-point scale. The overall feedback for all the days was good, most participants rated the session as up to their expectations.

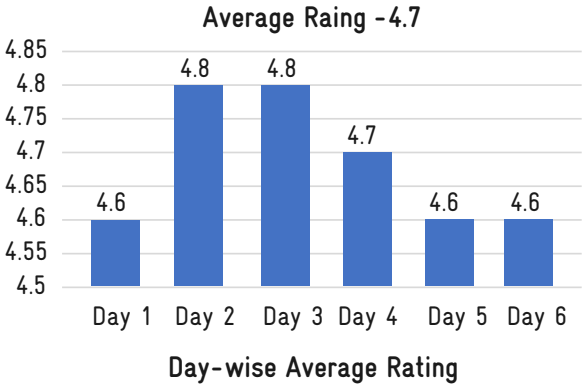


Figure 5-1: Day-wise Overall Rating

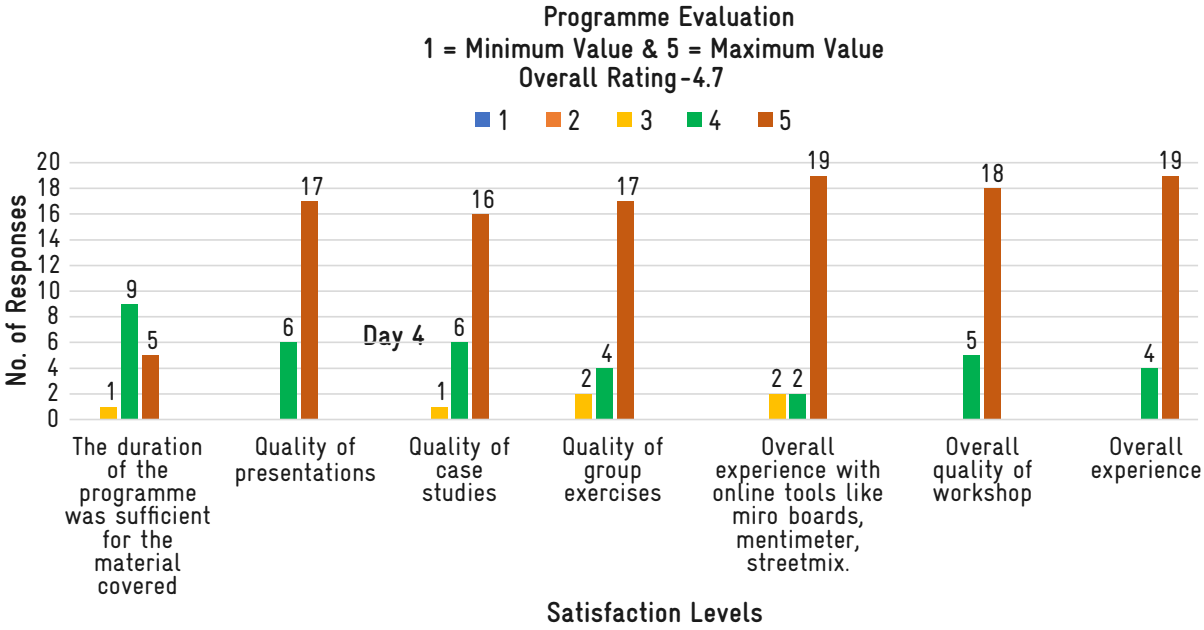
5.2 HIGHLIGHTS OF OVERALL FEEDBACK

The participants were asked to rate the quality of the different components of the Capacity Building programme such as the case studies, exercises, presentations, and site visits and facilities provided. The rating scale ranged from 1 to 5 with 5 being the highest quality rating.

More than 60 percent participants rated the presentations, discussions, group exercises and online tools at 5 (highest rating). The participants gave an overall rating of 4.7.

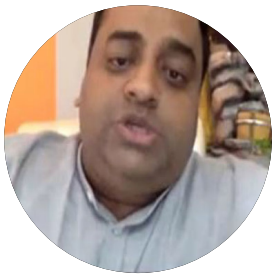
5.3 HIGHLIGHTS OF VERBAL FEEDBACK

The section below presents a snapshot of the feedback shared by the participants as quoted by them.



1 = Strongly Disagree, 2 = Somewhat Disagree, 3 = Neutral, 4 = Somewhat Agree and 5 = Strongly Agree.

Figure 5-2: Overall Programme Evaluation

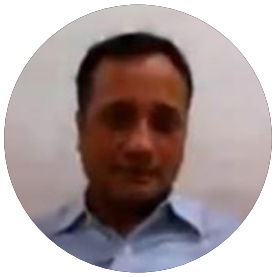


"I am thankful to be a part of this amazing programme. Customising solutions for the cities is the biggest learning for us, we would really appreciate if we could visit Kochi, Surat, and Ahmedabad to see the implemented models. If I can implement even a bit, of it in my city, it would be and achievement".

Mr. Mukesh Kumar,
Ranchi Municipal Corporation

"The overall workshop was good. The content is beautifully organised, and the way day starts and beforehand all the material has been shared, I believe that is a wonderful thing. The key takeaways are exposure to 'Streetmix, MMI tool. Hands-on exercise was very nice. Other things I learnt were adaptive traffic and integration of PT and I would like to introduce that into our city in near future". Thank you for the wonderful experience.

Mr. Ashit Kumar Rajhans,
Bhubaneswar Smart City Limited.



"This was very help for as I am working with Metro Rail Corporation in Bengaluru. Specially MMI session were very helpful for me, as we are planning for MMI at all the stations. Specifically, MMI maturity index would be very helpful in identifying where it will be required. Financing also as metro, we will be developing stations and other infrastructure with PPP. The overall experience is very good, and we are sure we will learn more things in the future."

Mr. Jitu Sharmah,
Bangalore Metro Rail Corporation Limited

5.4 PROGRAMME CONTENT AND HIGHLIGHTS

1. Presentations:

Most attendees felt that the presentations were "good" & "very effective and informative". Examples of comments were:

- "Informative and provided us with holistic approach of the PT."
- "Changed the perspective regarding Metro in the city."
- "Well structured and excellent."

Group 2-Day 1

Police dept. not part of decision making/policy making	Safer use of infrastructure	Multiple agencies	Curriculum to teach on road safety Promote active mobility	Motor Vehicle Act amendment. Helmet compliance, Seat belts, Increasing traffic rule, fine system to follow traffic rules.
Lack of ownership, multiple institutions	Lack of technology (ITMS) Lack of finances	Behavioral change in traffic rule system. No harsh mechanism on traffic rules enforcement	Lack of coordination in planning between different depts	Indian cities have a lower per capita private vehicle ownership when compared with other international cities. Higher tax charges for owning private vehicles in India. License and tax charges to afford a private vehicle is equivalent to own a private vehicle.
Traffic mobility infrastructure	Lack of staff to enforce the MV Act	Integration with RTO and traffic police (cancellation of DL), database integration	Public awareness on traffic rules. Education on traffic safety is also important. Infrastructure also a secondary issue which can be developed to control traffic safety	

- "Lovely set of presentations by all the speakers."
- "Very informative, and interesting."

2. Group Exercises:

Most participants gave good ratings to the group exercises and provided comments such as "good", "very good", "and very beneficial". Some felt that more time could be given for the interactive sessions. Most participants enjoyed the exercises. Some also stated that it was "thought provoking exercise". Some of the comments received were:

- "Key takeaways: Teamwork, what's happening around, how to present case argument."
- "Interactive, knowledgeable and informative."
- "Learnt about different ways to convince leaders, and the points to be kept in mind while planning."

3. Online Tools Used for Interactive Sessions:

StreetMix, Mentimeter and Miro Board:

- "Very amazing software, I am looking forward to use that in future as well."
- "Enjoyed hand-on exercise on Mentimeter and Streetmix, helped in better deigning of roads".
- "Working on Streetmixwas like going back to the school and, it was really enchanting".
- "Very useful tool as far as UT is concerned, we will definitely use it in future."

5.5 ASPECTS THAT NEED IMPROVEMENT

4. Online Workshop Experience

Most of the participants preferred physical presence instead of the virtual one as there were many interactive sessions conducted throughout the workshop. Some comments shared in this regard were:

- "It would have been more beneficial, had it been offline."
- "The platform has to be more user friendly."
- "Online workshops can also be held over weekend to avoid minimal disruption in work."
- "Wish it was an offline training."
- "Need more real time, on ground training sessions."
- "Having more site visits and physical presence would have been better."

6

WAY FORWARD

6.1 ACTION LEARNING MODULE

On the last day of the workshop participants were introduced to the Action Learning module, which focused on the concept of "learning by doing" through a project identified for their respective cities. The participants were expected to analyse the current situation, identify key issues, and draw out an implementable plan for the selected project.

The projects were identified under different theme areas. The idea was to take best practices as examples in sustainable transport and replicate the same in cities. A list of tentative topics along with background material was provided and participants were asked to choose a topic that they would prefer to work on any other project dealing with sustainable mobility domain, provided

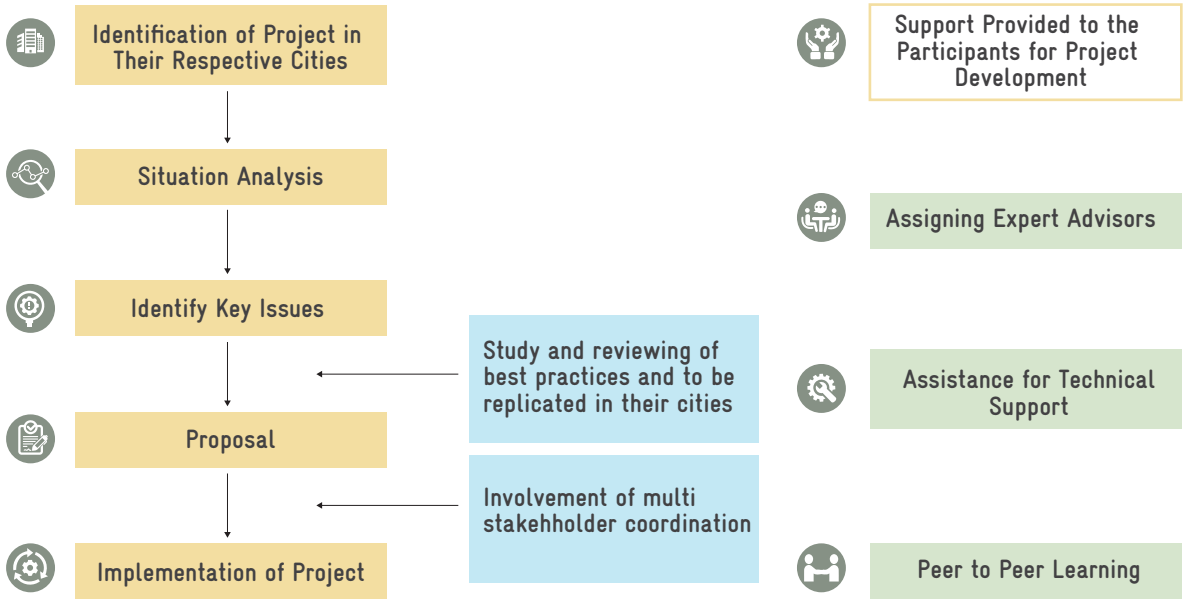


Figure 6-1: Action Learning Module

there is some value addition to the existing practice. The participants were expected to work on the project in the next three-and-a-half months.

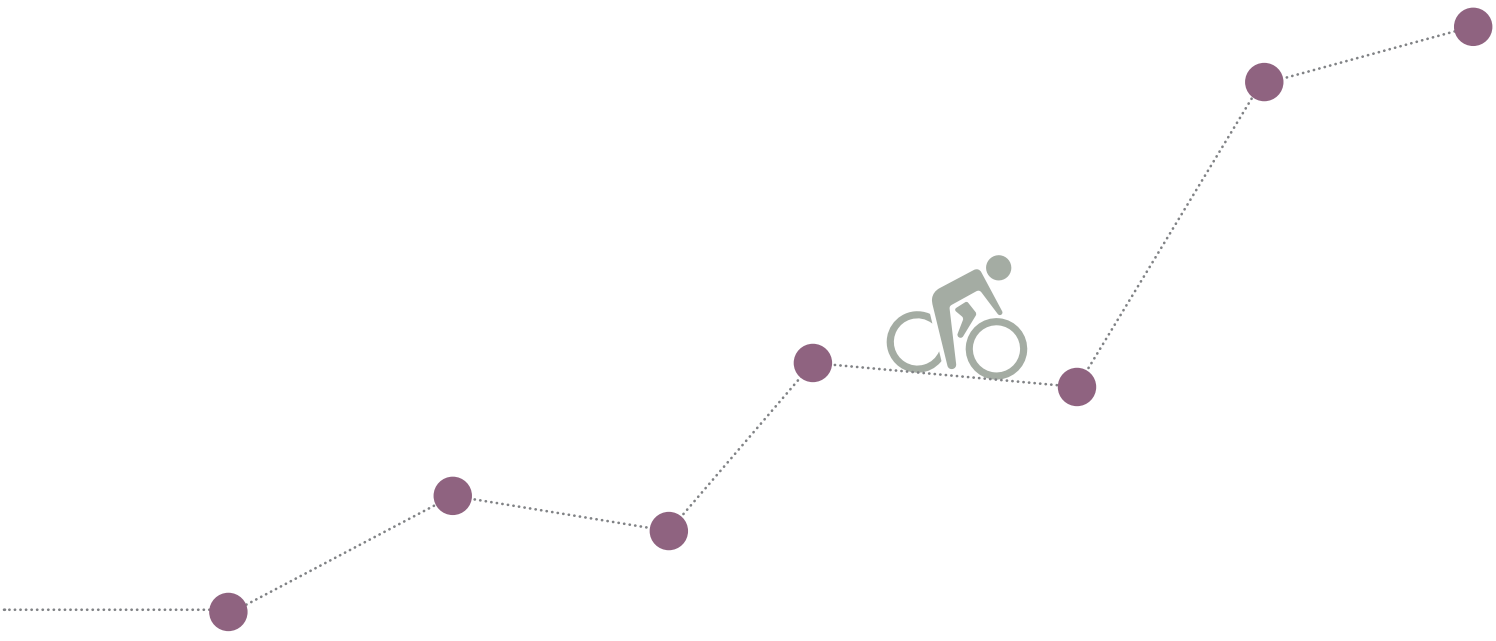
Participants were requested to choose from 44 projects. They were advised to form groups with maximum 2-3 participants from the same city. The project themes are mentioned below:

Project Themes:

1. Decision Making
2. Data Aggregation
3. Service Quality
4. Gender
5. Infrastructure Improvement
6. Demand Management
7. Branding and Communication
8. Financing
9. Institutional
10. Regulation and Enforcement

6.2 CROSS-LEARNING MODULE

- International exposure visit to be planned*
- Eligibility for this part of the programme is subject to successful completion of the Active Learning and Action Learning modules.



*Visit to Germany has been postponed to 2022 due to the on-going COVID19 travel restrictions

ANNEXURE 1

PROGRAMME SCHEDULE FOR CAPACITY BUILDING WORKSHOP

Day 1 – 22nd February 2021

TIME	SESSION DETAILS	RESOURCE PERSON
08:45-09:00	Registration of participants	CoE-UT - CEPT
09:00-09:45	**Inaugural Session**	
09:00-09:05	Welcome and introduction	Prof. Shivanand Swamy
09:05-09:15	Introduction to the SMART-SUT / GIZ & TUMI	Juergen Baumann
09:15-9:30	Address by Country Director, GIZ	Dr. Ulrike Reviere
09:30-09:45	Keynote address by OSD (UT) & E.O. JS, MoHUA, MoHUA	Jaideep
09:45-09:55	Launch of PBS report and Vote of Thanks	Laghu Parashar
09:55-10:00	Housekeeping rules and overview of the training programme and outline of the topics to be covered	Dr. Nitika Bhakuni
URBAN CONTEXT AND SUSTAINABILITY		
10:00-10:30	**Session 1-** Warm-up session	Kasinath, Linus Platzer and Robert Zimmermann
10:30-10:45	Tea Break	
10:45- 11:10	**Session 2** – Setting up the urban context and complexities in urban transport – Presentation and discussion	Prof. Shivanand Swamy

11:10-11:30	**Session 3**: Equity and Gender perspectives in Transportation – Presentation	Andrea Bluemel, Krishna Desai
11:30-12:15	**Group Exercise 1:** Why sustainable mobility? 1. Air quality & health: air quality and local emissions – Linus. 2. Traffic safety – Kasinath 3. Urbanisation: growing cities – Prof. Dr. Sanjay Gupta 4. Social considerations: Inclusion, equity & accessibility – Chhavi Dhingra 5. Climate & environment- Kanika Kalra	Presenter: Prof. Dr. Sanjay Gupta Facilitator: Linus Platzer Technical back stopper: Robert Zimmermann (TUMI) **Group Facilitators:** Linus Platzer, Prof. Dr. Sanjay Gupta, Chhavi Dhingra, Kasinath,Kanika Kalra
12:15-12:30	**Session 4: Pre-Session assignment**- Briefing for Site visit to undertake sample street audit	Adarsha Kapoor
12:30-13:00	Introduction to next day exercise and Feedback	Adarsha Kapoor and Dr. Nitika Bhakuni

Day 2 – 24th February 2021

PLANNING FOR URBAN STREETS & ACTIVE MOBILITY (WALKING AND CYCLING)		
9:00-10:30	**Session 1:** Short discussion on existing walking and cycling environment. **Group Exercise 1-** Group work: What are the common concerns for pedestrians and cyclists?	Adarsha Kapoor, Kasinath **Group facilitators:** Kanika Kalra, Amegh Gopinath, Linus, Kasinath, Ranjith
10:30-10:45	Tea Break	
10:45-11:15	**Session 2-** Planning of streets and public spaces for better walking and cycling conditions – Presentation and discussion	Adarsha Kapoor
11:15-11:45	**Group Exercise 2-** Online tool street mix (30 min)	Adarsha Kapoor, Linus Platzer, Viviane Weinmann, Robert Zimmermann (TUMI) **Group facilitators:** Kanika Kalra, Amegh Gopinath, Viviane Weinmann, Kasinath, Ranjith
11:45-12:15	Presentation of the several group results (30 min) & Summary	Adarsha, Linus Platzer, Robert Zimmermann (TUMI), Kasinath
12:15-12:30	Tea Break	
12:30-13:00	**Session 3:** Strategies for Active Mobility planning	Adarsha Kapoor, Linus Platzer
13:00-14:00	Lunch Break	
14:00-14:30	**Group Exercise 3-** Rhetorical exercise: How to convince your mayor to support active mobility projects	**Group facilitators:** Adarsha Kapoor, Kanika Kalra, Linus Platzer, Chhavi Dhingra, Narendra Verma
14:30-15:00	Participants presenting arguments in plenary	Linus Platzer, Adarsha Kapoor, Kanika Kalra, Narendra Verma, Chhavi Dhingra
15:00-15:30	Introduction to next day exercise and feedback	Prof. Shivanand Swamy

Day 3 – 26th February 2021

PUBLIC TRANSPORT		
09:00-09:45	**Session 1:** Public transport planning and operations in Indian cities - overview (Discussion and presentation)	Shivanand Swamy
09:45-10:30	**Session 2:** What to expect from good public transport system case videos and discussion	Nitika Bhakuni
10:30- 10:45	Tea Break	
10:45-12:15	**Session 3: Group Exercise -** Understanding user perspectives. Introduction to the exercise Participants get into 3 groups	Shalin Sinha **Group facilitators:** Shalini Sinha, Christy, Khelan Modi
12:15-12:30	Tea Break	
12:30-13:45	**Session 4: Gender Mainstreaming** Recap of the previous session on Gender Mainstreaming Participants get into 4 groups for exercise	Andrea Bluemel **Group facilitators:** Andrea Bluemel, Krishna Desai, Sonal Shah,Leonie
13:45-14:30	**Lunch Break**	
14:30-15:00	**Discussion and summing up**	Shivanand Swamy
15:00-15:30	Introduction to next day schedule and feedback	Nitika Bhakuni

Day 4 – 1st March 2021

MULTIMODAL INTEGRATION		
09:00-10:00	**Session 1:** Integrated transport presentation and case discussion	SK Lohia
10:00-10:30	**Session 2:** Hands-on exercise on assessing MMI maturity levels(15 min Presentation +15 MMI Tool) Participants get into 3 groups	Shalini Sinha and Khelan Modi **Group facilitators:** Shalini Sinha, Sangeeta Ann, Khelan Modi, Maitry Shah
10:30-10:45	Tea Break	
10:45-12:30	Group work on MMI maturity tool	Shalini Sinha **Group facilitators:** Sangeeta Ann, Khelan Modi, Maitry
12:30-12:45	Tea Break	
12:45- 13:30	**Session 3: MMI exercise -** Intervention areas Presentation by participants	Principal Secretary Transport Kerala, SK Lohia, Shivanand Swamy, Shirish Mahendru
13:30-14:30	Lunch Break	
14:30-15:00	**Session 4: Discussion and Summing Up**	Shalini Sinha
15:00-15:30	Introduction to next day schedule and feedback	Nitika Bhakuni

Day 5 – 3rd March 2021

DEMAND MANAGEMENT MEASURES AND ITS		
9:00-10:15	**Session 1:** Demand management measures – Presentation and discussion	Anumita Roy Chowdhury
10:15-10:30	Tea Break	
10:30-11:15	**Session 2:** Application of data and ITS for decision making Presentation and Discussion	Vivek Ogra
11:15- 12:00	**Group Exercise 1 –** Introduction to the group exercise andparticipants break into groups	Vivek Ogra **Facilitators** Parth Sharma, Nidhi and Rushin
12:00-12:15	Tea Break	
12:00-13:00	**Group Exercise 1 (cont.):** Participants work on the group exercise	**Facilitators** Parth Sharma, Nidhi and Rushin
13:00-13:30	**Session 3:** Hands-on Exercise on ITS and presentation	Vivek Ogra, Shivanad Swamy, Laghu Parashar
13:30-14:30	**Lunch Break**	
14:30-15:00	**Session 4:** Discussion and session summing up	Shivanand Swamy, Vivek Ogra
15:00-15:30	Introduction to next day schedule and feedback	Nitika Bhakuni

Day 6 – 5th March 2021

INSTITUTIONS AND FINANCING MECHANISMS		
09:00-9:30	**Session 1:** Financing transport	Gautam Patel and Laghu Parashar
9:30-10:45	**Session 2:** Group work on financing Exercise	Gautam Patel and Laghu Parashar **Facilitators** Nirav Joshi, Hiren Joshi, Amruta, Amegh Gopinath, Rana Amani
10:45-11:00	Tea Break	
11:00-11:30	**Session 2 (cont.):** Group presentation on financing Exercise	MD CRUT, Shivanand Swamy, Prof. Dr. Sanjay Gupta, Gautam Patel, Laghu Parashar
11:30- 12:15	**Session 3:** Institutional Integration	O P Agarwal
12:15- 12:30	Tea Break	
12:30-13:30	Feedback on the day and workshop (feedback form)	
13:30-14:30	Lunch Break	
14:30-15:00	Introduction to action learning module and next steps	Nitika Bhakuni
15:00- 15:10	**Session 4:** Summing-up for the session and workshop	Laghu Parashar
15:10-15:15	Participants speak about feedback (fill feedback form)	Participants
15:15-15:30	Address by OSD (UT) & E.O. JS, MoHUA (TBC)	Jaideep
15:45-16:00	Vote of Thanks	Juergen Baumann and Shivanand Swamy

ANNEXURE 2

DETAILS OF SPEAKERS AND RESOURCE PERSONS

Speakers and Resource Personnel

A. GIZ AND GFA

Mr. Laghu Parashar
Deputy Project Head
(SMART-SUT) – GIZ

Mr. Shirish Mahendru
Technical Expert – GIZ

Mr. Kasinath Anbu
Former Technical Expert – GIZ

Ms. Andrea Bluemel
Senior Advisor – GIZ

Mr. Amegh Gopinath
Technical Expert – GIZ

Ms. Rana A. Amani
Technical Expert (GUMP and SMART-SUT) – GIZ

Ms. Leonie Guskowski
Junior Project Manager – GIZ

Ms. Krishna Desai
Technical Expert – GIZ

Mr. Narendra Verma
Technical Expert – GIZ

Ms. Amruta Kulkarni
Consultant

Ms. Appurva Chauhan
Consultant

Ms. Chhavi Dhingra
Consultant, GFA Consulting (GmbH)

Mr. Ranjith Parvathapuram
Consultant, GFA Consulting (GmbH)

B. COE - UT, CRDF

Prof. H. M Shivanand Swamy
Emeritus Director,
CoE-UT, CRDF

Dr. Shalini Sinha
Executive Director,
CoE-UT, CRDF

Dr. Nitika Bhakuni
Associate Director,
CoE-UT, CRDF

Mr. Khelan Modi
Project Manager,
CoE-UT, CRDF

Ms. Maitry Shah
Transport Planner,
CoE-UT, CRDF

Mr. Jignesh Panchal
Transport Planner,
CoE-UT, CRDF

Mr. Gautam Patel
Director, Co-ordinates Infrastructure Consulting

Mr. Nirav Joshi
Principal Consultant,
Co-ordinates Infrastructure Consulting

Mr. Hiren Joshi
Associate Principal,
Co-ordinates Infrastructure Consulting

Mr. Firaq Pleza
Manager – Trainings and Workshops, CRDF

Ms. Christy Ann Cheriyan
Consultant

Dr. Sangeetha Ann
Transport Planner, Consultant

Mr. Ramit Raunak
Transport Planner,
CoE-UT, CRDF

Ms. Madhura Kawadkar
Transport Planner,
CoE-UT, CRDF

Mr. Suraj Sunil
Urban Planner

C. TUMI TEAM

Linus Platzer
Transport Policy Advisor, TUMI

Viviane Weinmann
Transport Planner, TUMI

Robert Zimmermann
Transport Inter, TUMI

D. EXTERNAL EXPERTS AND RESOURCE PERSONS

Dr. O. P. Agarwal
Chief Executive Officer,
WRI India

Dr. S. K. Lohia
MD & CEO
IRSDC

Mr. Adarsha Kapoor
Principal Urban Designer

Prof. Dr. Sanjay Gupta
School of Planning and
Architecture (SPA), Delhi

Ms. Kanika Kalra
Former Urban Transport Expert &
Acting Director (KMC), Institute of
Urban Transport (India)

Ms. Anumita Roychowdhury
Executive Director, Research &
Advocacy, Centre for Science &
Environment

Ms. Sonal Shah
Gender Consultant

Mr. Vivek Ogra
Partner, Mobility, PwC India

Mr. Parth Sharma
Principal Consultant,
Government & Public Sector,
PwC India

Mr. Rushin Bhansali
Senior Consultant, Government
and Public Sector, PwC India

Ms. Nidhi Shah
Specialist, Government &
Public Sector, PwC India

ANNEXURE 3

DETAILS OF PARTICIPANTS

Name : **Mr. Abhishek Ranjan Prasad**
Designation : Senior Public Transport Specialist
Department : Directorate of Urban Land Transport
State : Karnataka

Name : **Mr. Amit Gupta**
Designation : General Manager
Department : Chandigarh Transport Department
State : Chandigarh

Name : **Mr. Amit Kumar**
Designation : Director, SUDA
Department : (SUDA) Urban Development and Housing Department, GoJ
State : Jharkhand

Name : **Ms. Ankita Gupta**
Designation : Transport Planner
Department : Jabalpur City Transport Services Limited
State : Madhya Pradesh

Name : **Mr. Ashit Kumar Rajhans**
Designation : Technology Officer
Department : Bhubaneswar Smart City Limited
State : Odisha

Name : **Ms. Dipti Mahapatro**
Designation : General Manager (Personnel & Administration)
Department : Capital Region Urban Transport (CRUT)
State : Odisha

Name : **Mr. Deepak Patil**
Designation : Deputy Engineer, BRTS
Department : Pimpri Chinchwad Municipal Corp. BRTS Department.
State : Maharashtra

Name : **Mr. Gokul T. G**
Designation : Regional Transport Officer (Enforcement)
Department : Kerala Motor Vehicles Department
State : Kerala

Name : **Mr. Jitu Sharmah**
Designation : Manager (Transportation)
Department : Bangalore Metro Rail Corporation Ltd
State : Karnataka

Name : **Mr. Manickam J**
Designation : Assistant Manager
Department : Metropolitan Transport Corporation (Chennai)Ltd.,
State : Tamil Nadu

Name : **Mr. Manoj Kumar**
Designation : Town Planner
Department : Varanasi Development Authority
State : Uttar Pradesh

Name : **Mr. Mustafa K. Sonasath**
Designation : Assistant Manager (Operations)
Department : Surat Sitilink Limited
State : Gujarat

Name : **Mr. Mehulkumar S. Patel**
Designation : Executive Assistant (Municipal Commissioner Office)
Department : Surat Municipal Corporation
State : Gujarat

Name : **Mr. Mukesh Kumar**
Designation : Municipal Commissioner
Department : Ranchi Municipal Corporation
State : Jharkhand

Name : **Mr. Narinder Khajuria**
Designation : Additional Secretary
Department : Government of Jammu and Kashmir
State : Jammu and Kashmir

Name : **Mr. Ravi Kumar**
Designation : Section Officer
Department : MoHUA
State : Delhi

Name : **Mr. Rajesh Kashyap**
Designation : Additional General Manager
Department : SJPNL Municipal Corporation Shimla
State : Himachal Pradesh

Name : **Mr. Naresh Kumar**
Designation : Assistant Director (Technical)
Department : NCR Planning Board
State : Delhi

Name : **Mr. Rahul Goswami**
Designation : GM (PP & PPP) and DGM (Town Planning)
Department : JMRL
State : Rajasthan

Name : **Mr. Ravi Prakash**
Designation : Director
Department : MoHUA
State : Delhi

Name : **Mr. Ravindran G**
Designation : Deputy Manager (Commercial Corporate)
Department : Metropolitan Transport Corporation (Chennai)Ltd.
State : Tamil Nadu

Name : **Mr. Sandeep Soni**
Designation : AICTSL: Chief Executive Officer, IMC: Additional Commissioner
Department : Atal Indore City Transport Services Limited, IMC
State : Madhya Pradesh

Name : **Ms. Samjana Pradhan**
Designation : Assistant Town Planner
Department : Urban Development Department, Government of Sikkim
State : Sikkim

Name : **Mr. Saumil Ranjan Chaubey**
Designation : Addl Chief Executive Officer
Department : Govt. of Chhattisgarh, Urban Administration & Development.
State : Chhattisgarh

Name : **Ms. Sarah Fathima**
Designation : Superintendent of Police
Department : Police
State : Karnataka

Name : **Mr. Sushil Kumar Gupta**

Designation : Dy. General Manager/Operations

Department : DMRC, Operations Dept.

State : Delhi

Name : **Mr. Vishal Khanama**

Designation : General Manager, BRTS & Asst. Commissioner, AMC

Department : Ahmedabad Janmarg Ltd (100 % Subsidiary of AMC)

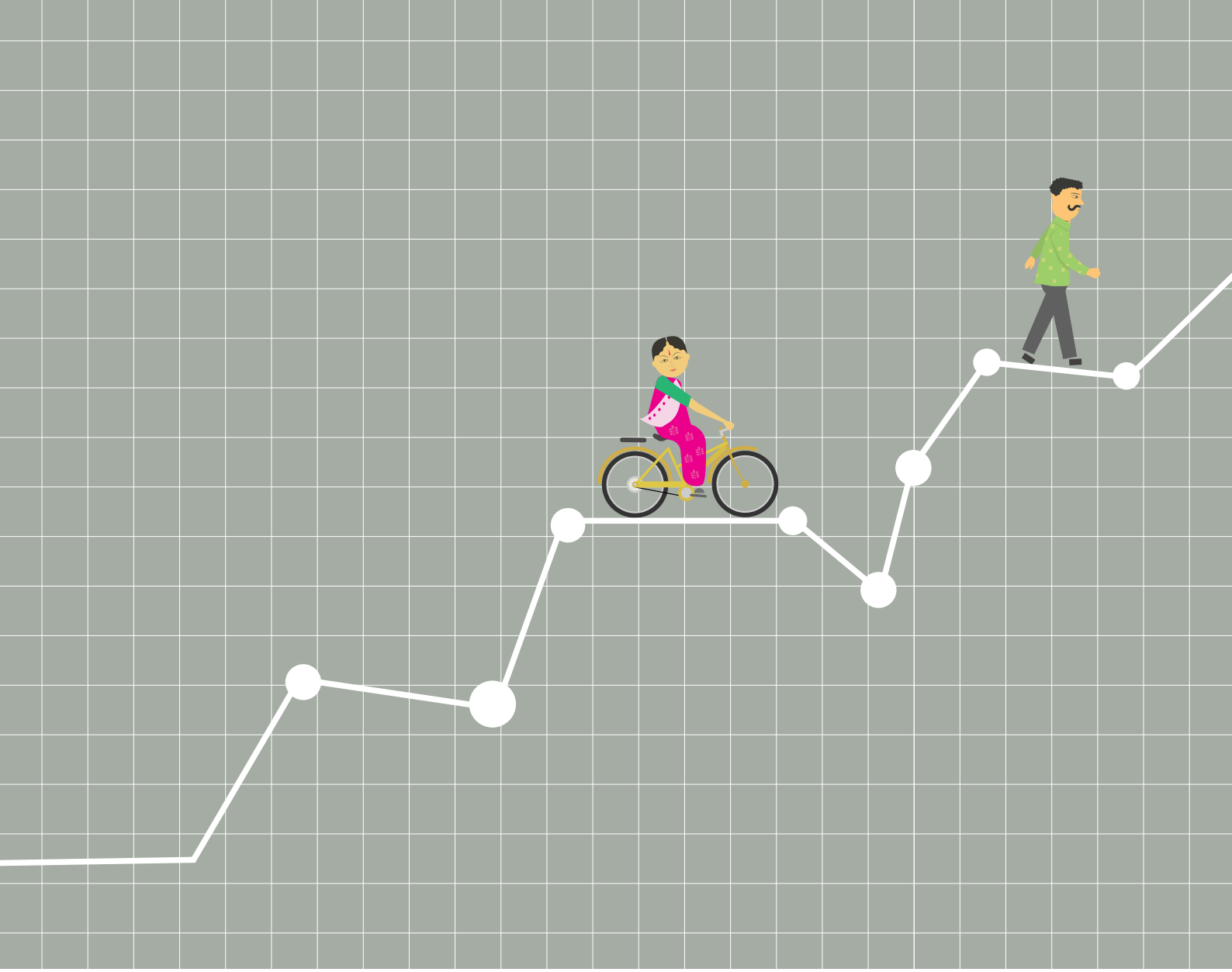
State : Gujarat

Name : **Mr. Zohmingthanga**

Designation : Executive Engineer

Department : Aizawl Municipal Corporation

State : Mizoram



Ministry of Housing and Urban Affairs (MoHUA) and Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH are jointly implementing the technical cooperation project "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)", commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ). The project works with the three Smart Cities of Bhubaneshwar, Coimbatore, and Kochi and respective state governments of Odisha, Tamil Nadu, and Kerala to promote low carbon mobility planning, and to plan and implement sustainable urban transport projects.

As part of the Indo-German bilateral cooperation, both countries have also agreed upon a strategic partnership – Green Urban Mobility Partnership (GUMP) between Ministry of Housing and Urban Affairs (MoHUA) and Federal Ministry for Economic Cooperation and Development (BMZ). Within the framework of partnership's technical and financial cooperation, the German government will support improvements in green urban mobility infrastructure and services, strengthen capacities of national, state, and local institutions to design and implement sustainable, inclusive, and smart mobility solutions in Indian cities. As part of the GUMP partnership, Germany will also be supporting expansion of public transport infrastructure, multimodal integration, low-emission technologies, and promotion of non-motorised transport in India. Through this strategic partnership, India and Germany intend to jointly achieve effective international contributions to fight climate change.