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Federal Ministry
for Economic Cooperation
and Development

Green
Urban Mobility
Partnership

INTEGRATED SUSTAINABLE
URBAN TRANSPORT SYSTEMS
FOR SMART CITIES (SMART-SUT)
CAPACITY DEVELOPMENT STRATEGY

IMPRINT

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ACRONYMS

ABD	Area Based Development
ADB	Asian Development Bank
AFD	Agence Française de Développement
AITUC	All India Trade Union Congress
AMRUT	Atal Mission for Rejuvenation and Urban Transformation
ASRTU	Association of State Road Transport Undertakings
BDA	Bhubaneswar Development Authority
BEST	Brihanmumbai Electricity Supply and Transport
BMC	Bhubaneswar Municipal Corporation
BMS	Bhartiya Mazdoor Sangh
BMTC	Bangalore Metropolitan Transport Corporation
BRTS	Bus Rapid Transit System
BSCL	Bhubaneswar Smart City Limited
BUKC	Bhubaneswar Urban Knowledge Centre
CAA	Constitutional Amendment Act
CBE	Coimbatore
CCMC	Coimbatore City Municipal Corporation
CD	Capacity Development
CDP	City Development Plan
CDS	Capacity Development Strategy
CEPT	Centre for Environmental Planning and Technology
C-HED	The Centre for Heritage, Environment and Development
CITU	Centre of Indian Trade Unions
CMP	Comprehensive Mobility Plan
CRUT	Capital Region Urban Transport
CSML	Cochin Smart City Limited
DTPS	Detailed Town Planning Scheme
EJADCS	Ernakulam Jilla Autorickshaw Driver's Cooperative Society
ETMs	Electronic Ticketing Machines
FKI	Fort Kochi Island
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH
GM	General Manager
GO	Government Order
GoK	Government of Kerala
HRIDAY	Heritage City Development and Augmentation Yojana
HUDD	Housing and Urban Development Department
INTUC	Indian National trade Union Congress
IPT	Intermediate Public Transport

ITS	Intelligent Transportation System
JDI	Joint Declaration of Intent
KILA	Kerala Institute of Local Administration
KMC	Kochi Municipal Corporation
KMRL	Kochi Metro Rail Limited
KPI	Key Performance Indicator
KSEB	Kerala State Electricity Board
KSINC	Kerala Shipping and Inland Navigation Corporation
KSRTC	Kerala State Road Transport Corporation
KURTC	Kerala Urban Road Transport Corporation
LCMP	Low Carbon Mobility Plan
LUTI	Land Use Transport Integration
MD	Managing Director
MLCP	Multi-Level Car Parking
MoHUA	Ministry of Housing and Urban Affairs
MoM	Minutes of Meeting
MoU	Memorandum of Understanding
MPCC	Mobility Plan Coordination Committee
MTC	Metropolitan Transport Corporation
MVD	Motor Vehicles Department
NMT	Non-Motorised Transport
O&M	Operations and Maintenance
OEMS	Original Equipment Manufacturer
OSDA	Odisha Skill Development Authority
PAMP	Parking Area Management Plan
PBS	Public Bike Sharing
PMU	Project Management Unit
PT	Public Transport
RAT	Revenue Assurance Team
RFP	Request for Proposal
SA Road	Sahodaran Ayyappan Road
SCM	Smart Cities Mission
SD guidelines	Street Design Guidelines
SLA	Service Level Agreement
SPV	Special Purpose vehicle
STU	Swathanthra Thozhilali Union (Independent Workers Union)
SWOT	Strength, Weakness, Opportunity, and Threat
SWTD	State Water Transport Department
TCP	Town and Country Planning
TNIUS	Tamil Nadu Institute of Urban Studies
TNSTC	Tamil Nadu State Transport Corporation
TOD	Transit Oriented Development
TP	Transport Planners

TPS	Town Planning Scheme
TUCI	Trade Union Centre of India
ULB	Urban Local Bodies
UMI	Urban Mobility India
UMTA	Unified Metropolitan Transport Authority
UT	Urban Transport
WB	World Bank
WG	Working Group
WS	Workshop
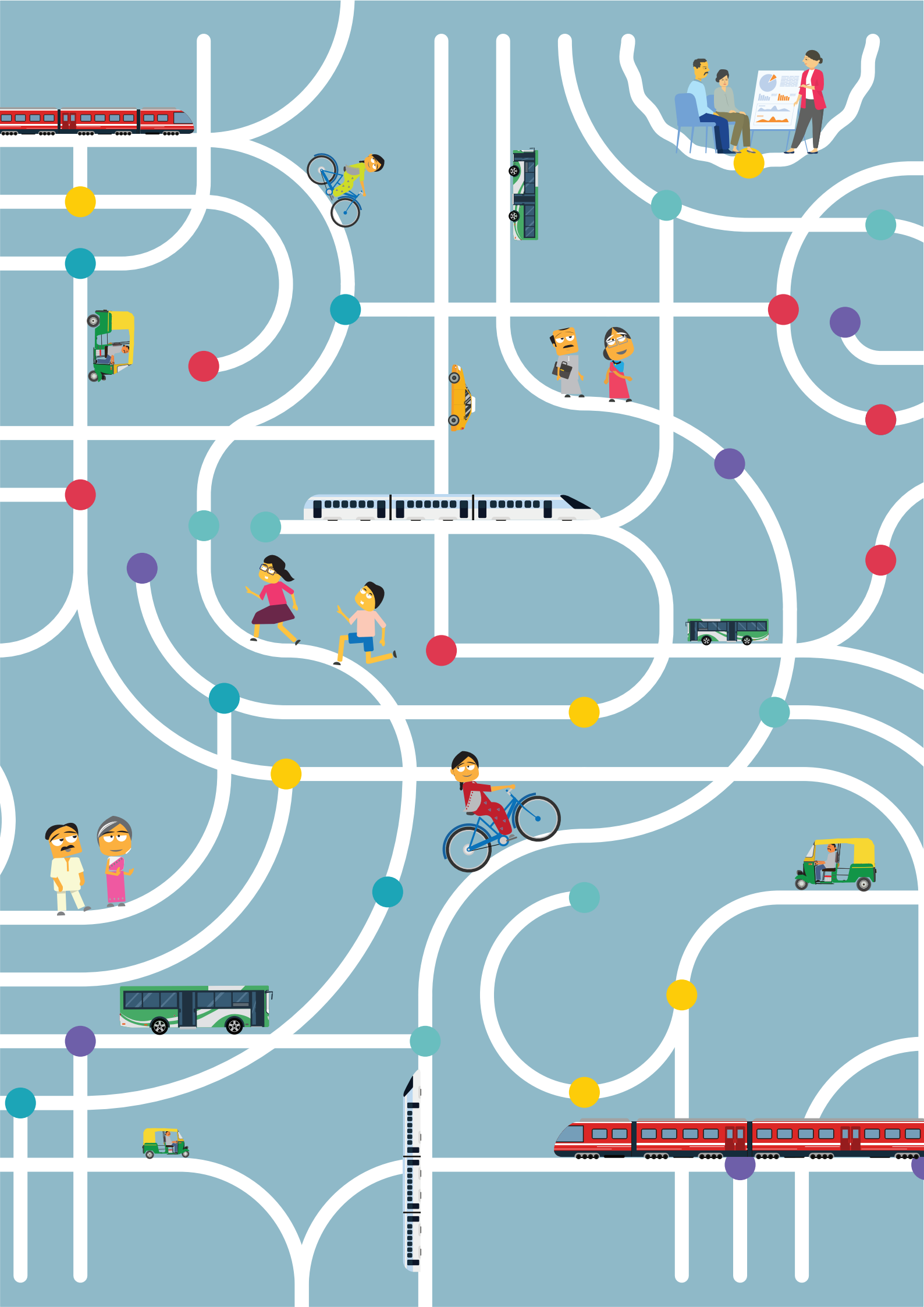
SUMMARY

Need for a Capacity Development Strategy (CDS)

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Ministry of Housing and Urban Affairs (MoHUA) jointly implemented the "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)" project to facilitate the planning and implementation of sustainable urban transport measures by developing capacities at national, state and city levels, and by jointly implementing projects on-ground in selected Indian cities on their way to becoming a Smart City.

SMART-SUT supports key institutions that have a transport-planning mandate, including the Special Purpose Vehicles (SPV) created under India's Smart Cities Mission (SCM), municipal corporations and providers of the urban mobility system and combines transport-oriented and methodological advisory services and training of the political partners (macro-level), and the implementing organisations (meso-level) with selected demonstration measures (micro level) for sustainable urban transport.

The objectives of the CDS are to chart a course for the project to improve the ability of the key actors mentioned above to plan and implement urban transport projects. The objectives and supporting indicators that drive the CDS for SMART-SUT are presented in the figure below.

Objective of the CDS: The ability of key actors in the pilot cities to plan and implement urban transport projects is improved			
Outcome 1:	**Outcome 2:**	**Outcome 3:**	**Outcome 4:**
The units/departments of SMART-SUT's implementation partners and affiliated institutions have increased technical, managerial, and administrative capacities in the area of urban transport	The units/departments involved with planning and provision of urban transport projects in the three pilot cities have taken steps to improve their existing processes and/or organisational structures, to improve their organisational performance	The implementation partners have established and/or increased cooperation mechanisms within and between relevant organisations and networks.	State capacities for replication and result-oriented steering of measures are improved

Output 1:	**Output 2:**	**Output 3:**	**Output 4:**	**Output 5:**
Trainings have taken place in each city that improve the need capacities in units/departments/ organisations to provide improved urban transportation projects.	Guidelines/ recommendations/ modules for organisational strengthening for improved urban transport planning and/or provision of Urban Transport (UT) services have been adopted in each city	Technical working groups or similar co-ordination mechanism are established in each city to facilitate cooperation between institutions active in the urban transport sector in the city	Consultation workshops have taken place in each city that support the partners in the development of planning and tender documents in urban transport	Human resources are trained on-the-job for transport planning related assignments

Urban transportas a domain, is very relevant to the sustainability of cities and yet is an "institutional orphan" as it is not the responsibility of any one agency. There are clear gaps at a systemic, agency and individual levels when it comes to understanding the complexities of the sector and its inter-relationships with urban planning. Despite it being a state "subject" in India, with provisions available for cities to take over parts of it, states do not have cadres for officers to work dedicatedly on urban transport issues, and city corporations do not have the necessary budgetary and human resources to take on large-scale urban transport related functions.

The process of developing the CDS

SMART-SUT relies on a multi-level and multi-actor approach to attend to the divided urban transport-planning mandate across local, state, and national level in India. Simply put, this means assessing the current capacities at all levels: people, organisations, and societal levels, reflecting on the vision of the city, and identifying capacity needs.

Instead of starting from ground zero and following a set process, SMART-SUT's capacity development approach builds on existing mandates, strengths, and resources of the implementation partners. This relies heavily on stakeholder mapping, interactions and assessments and provides a platform on which the actors involved get together in search of solutions to issues of concern to the city. Successful approaches can ultimately serve as models for scaling up.

Key actors that are targeted through this strategy mirror the existing 3-tier cooperation system for urban transport and include authorities in the pilot cities (Bhubaneswar, Kochi, Coimbatore), their corresponding states (Odisha, Kerala, Tamil Nadu) and the Ministry of Housing and Urban Affairs.

At the city level, the capacity development strategy follows a two-fold approach: building capacities implicitly and explicitly. By developing plans, tender documents and/or guidelines together with nodal contacts in the partner agencies, the project not only supports the improvement of urban transport projects in the cities but also tests and builds the partner's capacities. In addition to the on-the-job, implicit capacity development, SMART-SUT provides explicit support to the development of technical expertise, strengthening institutions, and cooperation mechanisms of key actors in the urban transport sector.

At the state level the project aims as providing direct handholding support to critical areas like gender mainstreaming and data management to government authorities through research and trainings, securing their support to formalise and scale-up such measures to other cities in the state.

At the national level, the project targets skilling of mid-career and senior level government officials working at the centre through executive programs, co-organising national level conferences and a series of online panels on urban mobility.

Putting the CDS to work

The CDS for SMART-SUT follows a pyramid approach where the bulk of activities are focussed on enhancing capacities at the city levels, moving up with a sharpened focus and more selective activities at the state and national levels. In cities, SMART-SUT adopts a 4-stage capacity development process which includes: (a) Needs assessment (b) Formulating action plans (c) Implementation of measures (d) Impact evaluation of measures take up.

In (a) SMART-SUT identifies work-areas closely in discussions and through consultations with the implementation partner agencies in each of the three cities and states. This is followed by a detailed mapping of existing and intended capacities. An example of this is multiple discussions with the auto society in Kochi called 'EJADCS', which coming from political and trade backgrounds, expressed the need to gain more technical insights on auto operations, especially in the scenario of a transition to electric autos.

In (b), the project builds on the proposed interventions from the capacity assessment above and suggests capacity development measures, beneficiaries, cooperation partners and expected outcomes in great level of detail. The operationalisation of the strategy pivots on the fact that this process is a partner driven approach and the SMART-SUT project team remains in an advisory role.The CD topics and individuals are chosen by the partner who are eventually responsible for its implementation and continuation beyond project end. This is demonstrated by the case of the bus agency Capital Region Urban Transport (CRUT) in Bhubaneshwar which requested specific type of CD support for short trainings and mentoring and coaching to introduce its newly established team to the principles of revenue collection, route planning and standard operating procedures.

In (c), the implementation stage, the SMART-SUT team assists with these tasks and suggests procedural steps (which could include trainings, development of guidance documents, recommendations for organisational processes, etc.), content and trainers, and hands-over of these activities back to the city and their long-term training partners, with the necessary guidance and documentation. In Tamil Nadu, after creating and training on modules on green and healthy streets for the road engineers of the city corporation, the same was compressed into a 4-hour refresher module to be handed over to the official training agency in the state- Tamil Nadu Institute of Urban Studies (TNIUS).

Finally, in the fourth stage (d), results are measured by assigning specific indicators to the outputs and outcomes presented in original objectives/impact matrix. The impact or implementation of the CD measures is documented through surveys, newspaper clippings and office memos documenting such changes. Examples of this have been generated in all 3 partner cities and states as the partners formalised some of the recommendations/actions emerging from the CDS. In Bhubaneswar, CRUT with technical support from SMART-SUT, exceeded a record ridership of 100,000 riders in a month, less than one year after starting its services in the region. EJADCS and the Kochi city corporation signed a 'joint declaration of intent' where for the first time the city and a co-operative society agreed to work together and provide safe, affordable, clean and accessible transport services to the city. In a first of its kind organisational change management strategy in Coimbatore, SMART-SUT targeted at creating green and healthy streets by providing 10-day long technical trainings to 50+ road engineers and facilitating organisational restructuring in the city corporation by creation of 5 new positions of 'NMT nodal officers' to be filled by the best performing trainees.

One of the characteristics this CD strategy is that it not only generates inputs at the different levels of capacities (individual, organisational and institutional), but also links these up to form coherent and holistic effects. Interventions at one level are **invariably linked** to and dependent on interventions at other levels. For example, in Coimbatore, the organisational change management process of creating positions of 5 nodal officers was only realisable if the potential candidates for the posts, underwent the rigours trainings on planning, designing, implementing, and overseeing road projects from the perspective of creating safer and greener streets, and became thus eligible to fill those positions. The training modules created as part of this exercise were commented and reviewed extensively by the local training entity TINUS. The modules are being institutionalised as part of TNIUS' annual refresher course that is imparted to all city authorities at the state level.

It is of prime importance to continuously update the capacity development needs and the changing framework conditions for city, state and national governments in the context of urban transport. Towards this it is SMART-SUT's endeavour to attempt and ensure the anticipated sustainability of the capacity development measures beyond project end. An indicator of the project's success is that by the time the project cycle is completed (in July 2022), the partner agencies feel more empowered (through improved institutional, organisational, and individual level capacities), equipped and technically adept to plan, implement, govern, and monitor their

urban transport projects through the technical assistance, tools, and capacity enhancement activities that SMART-SUT offered. The example of TNIUS adopting the refresher module on NMT and safe street design as part of its standard curriculum, signing of the JDI between KMC and EJADCS and adoption of standardised operating procedures and other tools by CRUT are all examples of such a long-term impact.

A snapshot pf the CDS activities taken up at each level (individual, organisational and institutional) in the three SMART-SUT partner states, is shared in the table below:

Levels of Capacity Development	Agreed CD measures and actions		
	Kochi/Kerala	Coimbatore/Tamil Nadu	Bhubaneswar/Odisha
Individual	♦ Leadership Development for senior officials of KMC, C-HED, EJADCS on choosing, leading, and mobilising sustainable mobility projects and actions. ♦ Technical Skills enhancement for EJADCS on auto operations and transitioning to electric mobility. ♦ Road improvement and public space redesign related demonstration projects to build leadership and capacities amongst staff of KMC and CSML.	♦ Technical capacity development through training/events/tools to improve planning, implementation and monitoring of urban transport projects like roads, data management for bus, etc. for various agencies (CCMC, MTA, TNSTC, Transport department, etc.) ♦ Road improvement and public space redesign related demonstration projects to build leadership and capacities amongst staff of CCMC.	♦ Technical skills enhancement for staff at CRUT and BDA on topic related to bus operations and urban street designing, respectively. ♦ Leadership development of 20 employees in CRUT through coaching and weekly assessments resulting career progression of some staff.

Levels of Capacity Development	Agreed CD measures and actions		
	Kochi/Kerala	Coimbatore/Tamil Nadu	Bhubaneswar/Odisha
Organisational	♦ Create formal reports guidebooks on topics like urban street design and improving organisational capacities for KMC and a knowledge document building on EJADCS's experience in Kochi for other cities to emulate in India. ♦ Support formation of a new urban transport Cell/dedicated team within KMC. ♦ Strengthen team and providing hiring support for EJADCS. ♦ Social media training for KSRTC, training and technical support on topics like route rationalisation.	♦ Facilitate development of a dedicated department and/or staff positions to work on NMT issues dedicatedly in CCMC. ♦ Officially embed a 4-hour long module on NMT as part of TNIUS's standard refresher training curriculum to be imparted to the entire state.	♦ Mentor teams at BDA on the terms and tendering of the CDP development process. ♦ Organisational restructuring and creating job descriptions and roles for all key personnel in the organisation structure at CRUT. ♦ Development of Standard Operating Procedures for bus operations, bus performance indicators, checklists, and reporting formats for CRUT. ♦ Formation of new teams like Revenue Assurance Team (RAT) and facilitating hiring of new staff in CRUT. ♦ Creation of standardised training calendar and curricula for CRUT. ♦ In person coaching and mentoring support to the CRUT team for extended periods.

Levels of Capacity Development	Agreed CD measures and actions		
	Kochi/Kerala	Coimbatore/Tamil Nadu	Bhubaneswar/Odisha
Institutional	♦ Facilitate agreements between partners to like Kochi Municipal Corporation (KMC) and EJADCS to work formally towards providing clean, safe, and accessible transport services to the city. ♦ Support acquiring legal permits for KMC from the Government of Kerala (GoK) to undertake new roles like allowing operations of shared feeder services in KMC. ♦ Support to KMC and GoK in formation of an UMTA in Kochi. ♦ Handholding Kerala Motor Vehicles Department (MVD) for Gender sensitive transport planning in bus operations.	♦ Creation of a city level NMT plan.	♦ Creation of a formal working group and steering committee for the LCMP to enable a coordinated and participatory approach towards mobility planning in the city of Bhubaneswar.

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1

PROJECT INTRODUCTION

1.1 Background

In the bilateral Government to Government Negotiations in 2015, Germany's Federal Ministry of Economic Cooperation and Development (BMZ) and the Ministry of Housing and Urban Affairs (MoHUA), Government of India, agreed to jointly launch a technical cooperation, now under the umbrella of the Green Urban Mobility Partnership, fostering sustainable urban transport systems as an integral part of the urban fabric of Indian cities. The project titled "Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)", which is being implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, aims to improve the planning and implementation of sustainable urban transport projects and pilot actions in selected Indian cities. The implementation, which started in November 2017, focuses on the pilot cities of Bhubaneswar, Coimbatore, and Kochi, which were selected by the German Government for special support on their way to becoming a Smart City.

The Project combines transport-oriented and methodological advisory services and training of the political partners (macro-level), and the implementing organisations (meso-level) with selected demonstration measures (micro level) for sustainable urban transport. SMART-SUT relies hereby on the multi-level and multi-actor approach to attend to the divided urban transport-planning mandate across local, state and national level in India. This project logic for SMART-SUT is explained in detail in the Annex by addressing the project outcomes, outputs and associated activities.

SMART-SUT hereby supports cities in four Indian urban transport critical areas of concern (planning, implementation, institutional strengthening and GHG emissions) that pose as a challenge for the Indian cities. The agreed target areas for the scope of SMART-SUT are translated into intervention areas and expected project results, which are common to all the three partner cities and states. Capacity development is a major stepping-stone in SMART-SUT's project logic and thus is explicitly attended to in three out of four intervention areas outlined in the Table 1.

1.2 Role of Partners in SMART-SUT

The SMART-SUT pilot cities have been awarded the "Smart city"[1] status by MoHUA in May 2016. A precondition for this status is that the city partners have identified priority areas – in some cases projects – and the necessary funds/resources to initiate or implement them. In that context, SMART-SUT supports key institutions that have a transport-planning mandate, including the Special Purpose Vehicles (SPV) created under India's Smart Cities Mission (SCM), municipal corporations and providers of the urban mobility system. The increasing attention to the Indian urban transport sector and changing strategies are resulting regularly in priority shifts and fragmented transport planning mandates among city and state level authorities.

It is the SMART-SUT's intention to assist the project partners in finding their responses to the present urban transport challenges in the pilot cities. An indicator of the project's success is that by the time the project cycle is completed, the partner agencies feel more empowered (through improved institutional, organisational and individual level capacities), equipped and technically adept to plan, implement, govern and monitor their urban transport projects through the technical assistance, tools and capacity enhancement activities that SMART-SUT offers. To that extend, the project identifies work areas closely in discussions and through consultations with and upon advice from, the implementation partner agencies in each of the three cities. The initial definition took place during the project inception phases in 2017/2018 and is continuously monitored to

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[1] In 2015 the Government of India launched the Smart Cities Mission, aiming to harness the opportunities afforded by technological innovations to address India's challenges of urbanisation. The Mission's five year funding programme intended to stimulate innovation within 100 cities, primarily to support initiatives across e-governance and citizen services; waste, water and energy management, and urban mobility.

Table 1: SMART-SUT's support to Indian cities

Area of concern in UT sector	Intervention areas	Planned project results
Project planning	Support to planning and implementation of sustainable urban transport projects in the fields of non-motorised transport, public transport or modal integration (Component 1).	4 further Indian cities demonstrate, by way of example, that recommendations for the improvement of the planning and implementation of sustainable urban transport projects in the fields of non-motorised transport, bus transport and modal integration, were included in their planning (Module Indicator M3).
Project implementation	Support to strengthening institutional capacity for regulating, steering and planning urban mobility. (Component 2). Learning and exchange formats with other cities across India for exchanging on best practices for urban mobility measures and institutional transformation (Component 3). State-level capacity development (Component 4).	In the three pilot cities (Bhubaneswar, Coimbatore, and Kochi) supported by the project, two measure for sustainable urban transport which takes into account the recommendations compiled by the Programme, is being implemented respectively (Module Indicator M1). The pilot measures supported by the project to achieve significant reductions in emissions, have been documented and are available to other cities as a reference for the implementation of similar measures (Module Indicator M4).
Institutional strengthening		4 further Indian cities have taken measures to improve their institutional capacity (mandate, structure, processes, competences, coordination) on the basis of the pilot approaches disseminated by the programme in the pilot cities (Module Indicator M2).

expand, adapt and change project activities based on partner priorities. This is especially important but not limited to major external events such as the global health crisis caused by COVID-19 or political elections in the selected states and cities that impact the needs of SMART-SUT's implementation partners. The SMART-SUT team therefore, relies on the close relationships and open communication established and maintained since project start with nodal contacts in the partner institutions.

Additionally, the pilot cities navigate their responses to urban transport challenges in vastly different governance structures that call for an institution-wise support approach by the SMART-SUT team.

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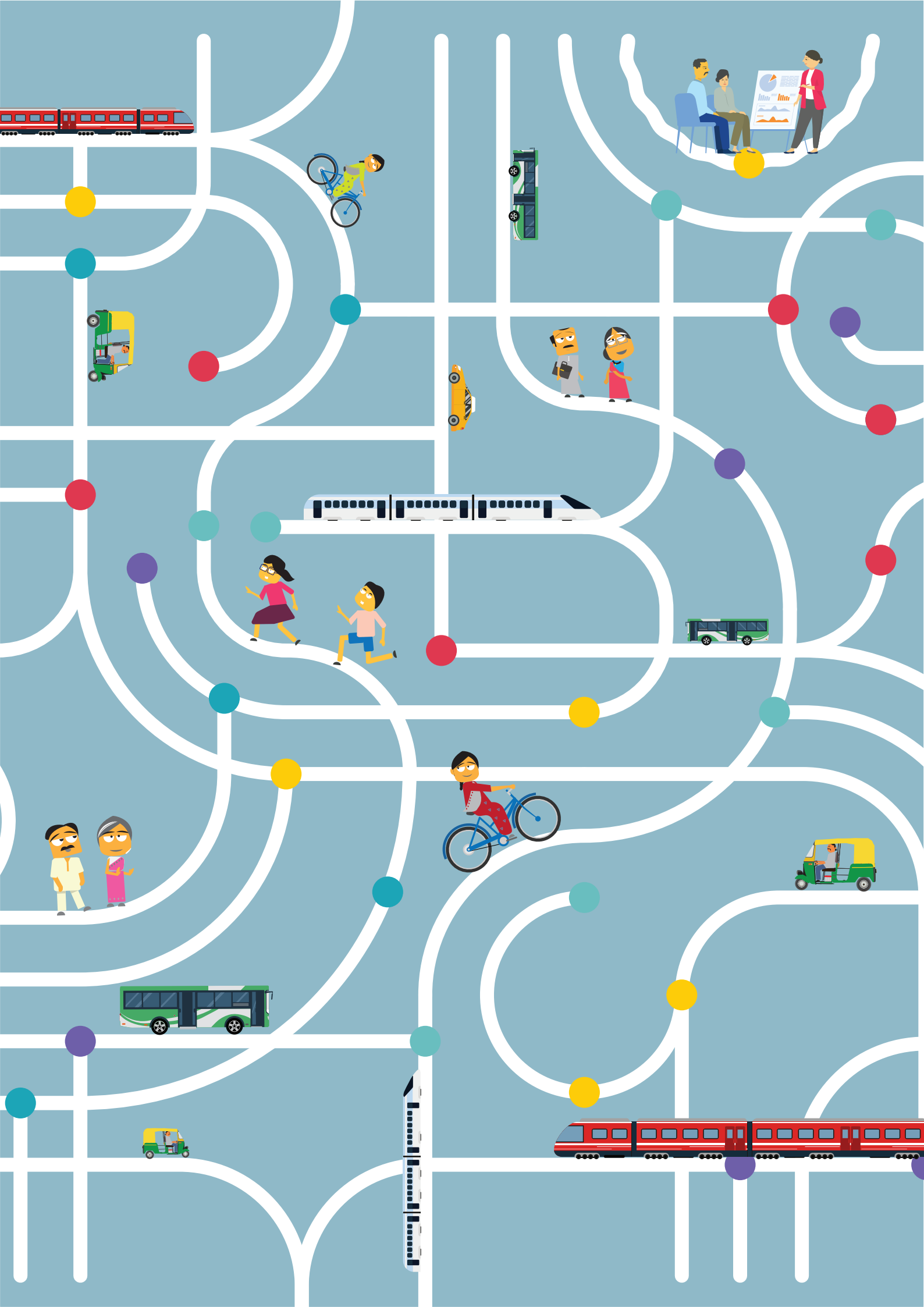
CAPACITY DEVELOPMENT IN CONTEXT OF THE SMART-SUT PROJECT

2.1 Definition and narrative of Capacity Development in the context of SMART-SUT
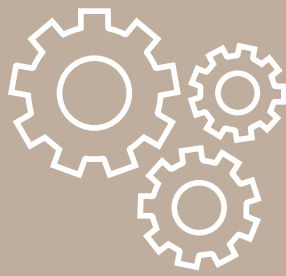
"The process by which individuals, groups and organisations, institutions and countries develop, enhance and organise their systems, resources and knowledge; all reflected in their abilities, individually and collectively, to perform functions, solve problems and achieve objectives." OECD (2006)

India, in the last two decades, has seen a variety of policy reforms and national mission packages that target giving a thrust to urban development in general and urban mobility infrastructure in particular. These include the National Urban Transport Policy (2006), the JNNURM program, AMRUT and Smart Cities Mission. The last three programs collectively invested over 3000 million Euros on urban transport projects in Indian cities in between 2005 and 2019[2]. However, analyses and learning available from these missions have brought forth the following shortcomings:

♦ The states and cities did not necessarily develop the capacities and skills needed to take up such projects in the longer term and were largely reliant on the presence of external consultants.

♦ States do not have cadres for officers to work dedicatedly on transport issues, and city corporations do not have the necessary budgetary and human resources to take on large-scale urban transport related functions.

♦ Lack of monitoring frameworks embedded as part of the mission guideline, created lack of accountability and quality.

♦ The projects did not always promote the use of sustainable modes of transport and urban spaces in an equitable way (a number of metros and flyover projects came up in medium sized cities as part of the JNNURM mission).

♦ The creation of new bodies like the SPVs in case of the Smart Cities Mission, produced both relief and additional stress on the urban transport sector: While it resulted in

Figure 1: Institutional gaps and overlaps in urban transport (source Deloitte 2014, p.29)

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[2] Sources: 1) http://smartcities.gov.in/content/innerpage/list-of-projects.php, 2) Swamy, Shivanand. (2014). Urban Transport Developments in India under NUTP and JnNURM, and 3)http://amrut.gov.in/content/innerpage/overview-saap.php

efficient project management and delivery, it also added one more body to the already fragmented and complex eco-system of urban transport institutions, with often overlapping roles and co-ordination issues with the city level agencies (figure 1).

So far, most of the efforts and advocacy in the field of urban transport has focussed on outcomes rather than the processes. Despite the 74th Constitutional Amendment devolving powers from the state to cities that provides an enabling framework for participative governance, city municipal corporations still lack the requisite funds, workforce, internal processes and resources to play a leading role planning and implementing urban mobility projects. In many agencies working in cities, the existing organisational structures do not reflect the presence of a well-established urban transport planning or project delivery system process in place. Processes like annual budgeting exercises also do not give importance to sustainable modes of transport or mobility projects.

Given the above, the pilot cities and SMART-SUT recognised the enormous challenges that cities in India face when it comes to creating sustainable urban transport projects. The city partners recognise that their capacities need to be strengthened to ensure that the longer-term value of initiatives such as the Smart Cities Mission prevail. SMART-SUT hereby

aspires to strengthen further the capacities of its implementation partners in each pilot city and their administrations in urban transport project planning, execution and management. The activities aim to ultimately enable those city administrations to undertake similar projects independently in the future.

The capacity development support by SMART-SUT thus closely links with its technical assistance in the project: targeting capacities relevant for improved urban transport planning, implementation and management/governance at the central, state and city levels. The capacity development strategy hereby follows a two-fold approach: building capacities *implicitly* and *explicitly* as part of SMART-SUT's support. By developing plans, tender documents and/or guidelines together with nodal contacts in the partner agencies, the project not only supports the improvement of urban transport projects in the cities but also tests and builds the partner's capacities. In addition to the on-the-job, implicit capacity development, SMART-SUT provides explicit support to the development of technical expertise, strengthening institutions, and cooperation mechanisms of key actors in the urban transport sector. The explicit capacity development activities hereby build on the thematic areas identified in each project city to facilitate the planning and implementation of selected projects (see example in figure 2 below).

Implicit capacity development	Explicit capacity development
SMART–SUT supports the city corporation in Kochi in the creation of plans and drawings for inclusive streets. Part of this technical assistance are regular workshops to discuss process, methodology and the street designs. These regular exchanges thereby help sensitise and orient government stakeholders and others towards current thinking and good practices on sustainability in the urban mobility sector. Advising decision-makers ultimately helps them identify priority areas for Kochi when it comes to mobility planning and decision making for projects in the future.	On request of the implementation partner in Bhubaneswar, SMART–SUT supports the cities bus service provider (CRUT) developing human resource training strategies, organisational processes, defines job descriptions and defines trainings for CRUT employees. The aim is to enable CRUT to effectively improve the management of its bus operations in the city.

Figure 2: Example for implicit and explicit capacity development under SMART-SUT

These linkages between implicit and explicit capacity development are the backbone of SMART-SUT's long-term impact and are evident in the overall project logic and framework of outputs.

For the capacity development process, SMART-SUT builds on existing mandates, strengths and resources of the implementation partners. The project also provides a platform on which the actors involved get together in search of solutions to issues of concern to the city at large, and provide spaces in which new forms of cooperation can be rehearsed before being integrated into their urban mobility sector. Successful approaches can ultimately serve as models for scaling up. The idea is to also focus on quick wins in order to motivate the actors concerned and boost their willingness to change. GIZ believes that positive experiences and joint success encourage people to place trust in their own ability to innovate[3].

2.2 Capacity development for Whom and on What?

When a sustainable change within the urban mobility sector is facilitated, the approach builds on the understanding of how the "urban mobility cooperation system" in Indiais operating. This means assessing the current capacities at all levels: people, organisations and societal levels, reflecting on the vision of the city, and identifying capacity needs (refer to figure 3). Key stakeholders that can drive this change in the context of SMART-SUT are the authorities in the pilot cities (Bhubaneswar, Kochi, Coimbatore), its corresponding states (Odisha, Kerala, Tamil Nadu) and the Ministry of Housing and Urban Affairs. Figure 3 describes the different levels of CD (individuals, organisations, society) alongwith the potential actors, purpose of enquiry and possible activities involved. The societal level is further broken down into the elements of cooperation systems and enabling frameworks. In the context of SMART-SUT, these two elements are jointly addressed and thus have been clubbed into one and referred to as institutional or systemic level capacity development in this document.

2.2.1 Individual skills and competencies
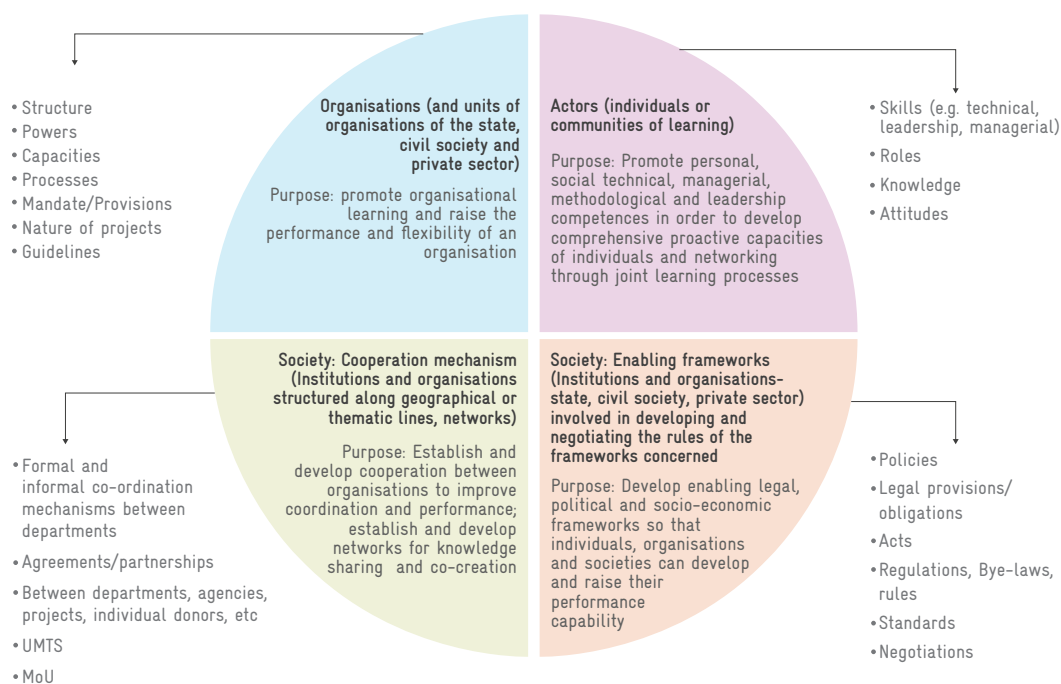
The Indian Urban Transport sector relies on

Figure 3: Capacity Development Levels (Source; Capacity Works 2015)

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[3] p28, Cooperation Managementfor Practitioners: Managing Social Changewith Capacity WORKS, 2015, Springer Gabler

a limited amount of transport experts both in the public and in the private sector. The State generally handles matters related to policy formulation, project identification and implementation, including the state transport services, metro services, monitors private bus operations, and even city bus service in some cases (as seen in Kerala). With respect to these functions, there are multiple parastatal agencies formed under the State Transport Department.

Urban Transport being a state level subject, city level agencies in India generally lack skilled transport professionals and workforce. Staff, especially in urban local bodies (ULB) that is simultaneously working in various sectors such as public health, and water sanitation perform these functions. They are likely trained on different subjects, and hence unfamiliar with the latest approaches on sustainable urban transport. Given the lack of time at hand from their daily tasks, it is reasonable to expect that limited to no opportunities are available to them to learn about good practices, case studies and data from other cities/countries.

Individuals work at various levels in partner agencies and additional departments involved in projects relating to non-motorised transport (NMT), bus transport and inter-modal integration at city level:

♦ Engineers/ Technical staff

♦ Political Leaders (Mayor, Councillors)

♦ Trainers

♦ Policemen/women

♦ Architects/Planners

♦ Managers

♦ Bus and auto drivers, Conductors, etc.

♦ Heads of Society

In order to make sustainable urban transport a reality in cities, it is important that competent technical experts and decision makers within the city and state administrations, are able to take well-informed decisions and ensure leadership and ownership of transport related plans and projects.

2.2.2 Organisational performance and readiness

In India, the organisational performance of the public administration depends to a large degree on its structures, processes, rules and rituals. In case of urban transport, these can be quite vague and unclear because the mandate for urban transport planning is not with one distinct organisation at national, state and city level.

At city level, a multitude of organisations plays different and at times overlapping roles. This results in the following fragmented and complex stakeholder landscape of the urban transport stakeholders:

♦ **City corporation**: road design, street infrastructure maintenance, land allotment, parking management, local area planning, mobility project approvals, regulation of mobility services.

♦ **Development authority**: city master plan development, mobility project approvals, parking.

♦ **Regional Transport Office:** vehicle licensing and regulation, monitoring and managing private bus service.

♦ **Public Works Department:** road and utility works.

♦ **Traffic Police:** traffic management and road safety.

♦ **Smart city cell:** implementation of smart city projects, technology and data management.

♦ **Public transport agencies:** provision of bus or metro services.

♦ **Paratransit service provider associations:** auto rickshaw or taxi service providers.

Key areas that define sustainable mobility like inclusive streets, integrated public transport and para transit systems, safe movement for pedestrians and cyclists are shared between agencies and are the responsibility of none of these agencies.

The same is true for state and national levels, where the same level fragmentation and overlaps can be seen.

2.2.3 Inter-organisational coordination and overall cooperation systems

The fragmented roles and responsibilities are challenging urban transport in India thus remain one of the root causes for incomplete urban transport planning. Inter-organisational coordination and cooperation systems become increasingly critical to ensure sound planning, implementation and delivery of urban transport projects. For example, the introduction of SPVs as the organisation to spend and implement projects of the Smart Cities Mission revealed a further fragmentation of the urban transport mandate but also that the aimed speed of implementation increasingly marginalised public participation in many cities[4].

City administrations need to effectively engage with the various internal players like SPVs, PT agencies, Traffic Police, etc. and external agencies such as development agencies, project developers, finance institutions, consultants, universities, etc. They also need to engage with the civil society and ultimate end-users of all urban mobility projects.

2.3 Capacity Development "Impact Matrix"

Capacity development of SMART-SUT is closely aligned with and flow from the project outcomes and outputs with several project indicators explicitly addressing capacity development. Based on the logic for CD in SMART-SUT outline in the previous chapters, the table2 below presents the table of results in terms of proposed CD related outcomes and their corresponding outputs:

Table 2: Capacity Development Results Table[5]

Objective: The ability of key actors in the pilot cities to plan and implement urban transport projects is improved			
Outcome 1: The units/departments of SMART-SUT's implementation partners and affiliated institutions have increased technical, managerial, and administrative capacities in the area of urban transport.	**Outcome 2:** The units/departments involved with planning and provision of urban transport projects in the three pilot cities have taken steps to improve their existing processes and/or organisational structures, to improve their organisational performance.	**Outcome 3:** The implementation partners have established and/or increased cooperation mechanisms within and between relevant organisations and networks.	**Outcome 4:** State capacities for replication and result-oriented steering of measures are improved.

| **Output 1:** Trainings have taken place in each city that improve the need capacities in units/departments/ organisations to provide improved urban transportation projects. | **Output 2:** Guidelines/ recommendations/ modules for organisational strengthening for improved urban transport planning and/or provision of UT services have been adopted in each city. | **Output 3:** Technical working groups or similar co-ordination mechanism are established in each city to facilitate cooperation between institutions active in the urban transport sector in the city. | **Output 4:** Consultation workshops have taken place in each city that support the partners in the development of planning and tender documents in urban transport. | **Output 5:** Human resources are trained on-the-job for transport planning related assignments. |

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[4] Source: "Where Next for Urban Transport Policy? Lessons from the Smart Cities Mission" https://underreform.org/wp-content/uploads/sites/29/2020/02/12400_policy_briefing_document_WEB.pdf

[5] The majority of the focus of this project has been to work at the city level, and while training programs were conducted for audiences outside the partner cities and states through more nationally driven platforms, this table does not explicitly mention any national and state level trainings and assumes those are included in the SMART-SUT cities/target audiences itself.

2.4 Challenges and mitigation strategy

A key piece of a successful capacity development strategy is the awareness of challenges and the preparation of corresponding mitigation actions when working on local, state and national level in India. Only when overcoming the challenges outlined in the table below, the capacity development measures will achieve a long-lasting difference within the Indian government and its affiliated institutions. It is thus of prime importance to continuously update the capacity development needs and the changing framework conditions for city, state and national governments in the context of urban transport. The following table highlights the most common challenges when working with local authorities on the Indian urban transport sector based on the ongoing experience advising Indian cities.

Table 3: Challenges and mitigation actions for developing capacities of Indian authorities

Challenges	Mitigation efforts
Governance structures differ by city	♦ Prepare detailed stakeholder map and capacity needs assessment by city/institution to facilitate a tailored capacity development strategy. ♦ Discuss and develop CD approaches that suit each city government and/or each targeted institution.
Regular staff rotations	♦ Target staff at all levels of experience from Junior to Senior staff to anchor the developed capacities across various heads while also enabling all staff working on transport to benefit and apply the gained knowledge in their work packages leading to cohesive activities. ♦ Involve training institutions in the on boarding of new staff. ♦ Target change in processes in addition to skilling people to ensure longevity. ♦ Sensitise the institutions for the need of a continuous capacity development caused by the regular rotation of staff which would enable a smooth continuation of designing, planning and implementing projects.
Elections	♦ Time window to achieve and present tangible results are short. ♦ Address short-term benefits on the way to the anticipate long-term changes. ♦ Attempt inclusion of "quick win" projects as proposals in annual budgets whenever possible.
Changes in partner priorities	♦ Regular meetings with all stakeholders involved to anticipate and receive signals for priority changes early and adapt the strategy accordingly. ♦ Close monitoring with all stakeholders involved to be able to act appropriately when significant priorities change.
Partner agenciesrely heavily on external actors to fill short-term capacity gaps	♦ Involve regular consultants from the ULB in the capacity development measures. ♦ Train and mentor existing staff within the agency, or assist in absorption of trained staff into the agency. ♦ Ensure CD of all team members involved in projects and develop strong documentation.
Biased opinions/ expectations in CD measures based on previous experiences with different organisations	♦ Highlight the significance of a capacity assessment to identify the needs and agree on the most appropriate measures based on these needs. ♦ Ensure capacity development measures as a part and parcel of any technical discussion. ♦ Address concerns, scepticism, expectations continuously from start to end of the support. ♦ Ensure interaction of partners with various levels of staff in the project hierarchy to help them understand the various perspectives and the larger picture.

Challenges	Mitigation efforts
Underrepresentation of women	♦ Sensitise partner institutions on the role of women in both the conceptualisation of mobility concepts and as end-user of mobility systems. ♦ Encourage the recruitment of qualified women into technical and decision-maker positions in partner institutions. ♦ Support collection of disaggregated data on user habits by gender and income group for evidence-based decision-making.
Absence of associate training institution and/or trainers at city/ state level	♦ Identification of training institute/trainers in cities/states where the same is lacking and introduce the concept of a continuous affiliation for a sustainability of training efforts. ♦ Cooperate with private, local training institutions and through the cooperation develop their capacities on urban mobility as well as training government officials. ♦ Assess the possibility of establishing a training branch within the local/state government. ♦ Utilise existing training modules available on urban transport in the cities/ states where available and develop the same further together with the training institution/trainers.
Absence of exchange platforms for inter-department cooperation and coordination	♦ Introduction to the benefits of inter-department cooperation and coordination of efforts on improving the local transport system. ♦ Establishment of an exchange platform, e.g. through an initial working group with representatives of all key agencies that gets formalised in due course.
Unfamiliarity with planning concepts and terminology	♦ Introduce decision-makers and trainers to key terminologies while simplifying the technical concepts surrounding transport planning. ♦ Use visuals for communication to train participants that can also be used for public campaign.

How to sustain longevity of SMART-SUT's capacity development activities – an example using CEPT

In order to sustain the longevity of activities of a project like SMART-SUT that is temporary in nature, the engagement draws from, builds on and cooperates with established institution in the Indian urban transport sector.

One of these institutions is CEPT University's Centre of Excellence in Urban Transport (CoE-UT). Through research and consulting engagements, CoE makes available their academic knowledge and expertise to external stakeholder including the government public sector bodies, communities and business working on urban transport related topics. In this capacity, CoE has provided advisory support for example for the development of the BRTS in Ahmedabad, Hubli Dharwad, Surat and the demand assessment for a metro in Ahmedabad and Surat. The hands-on involvement on various projects with the government has helped develop the Centre's capacities that enabled CoE UT to design and deliver customised training programs in transport for different agencies/cities.

SMART-SUT hereby advances existing capacity development efforts, such as the one from CEPT's CoE UT to tailor them to the needs of partners at city and state level. Coordinating these tasks with this and other established institutions ensures that the developed ideas and concepts, 1) are made available for CD efforts beyond the project duration, 2) can be up scaled and adapted to different partner needs that CEPT supports, 3) are made available to CEPT's wider network, and 4) incorporates a multitude of perspectives through the larger working group. Finally, cooperating with an agency like CEPT that provides a wide range of experiences, the partnership works on a multitude of activities that aim for a coherence approach to reduce silo thinking.

Figure 4: Demonstration example to sustain SMART-SUT's long-lasting impact

To overcome these challenges, SMART-SUT draws on the extensive experience gained in this and similar engagements in India. The demonstration example below presents one approach that addresses various overlapping challenges:

2.5 Principles for developing capacities

Multiple public authorities active in the project cities are equipped with a transport sector related mandate. They vary in size, date of establishment and function in differing governance environments. The CD strategy thus accommodates these varying framework conditions in each of the project cities/ states. CD measures are thus not only tailor-made by city but by city-based institution. Grown out of the city's demand to support capacity development likewise of long-established municipal corporations, newly developed public transport service providers, societies and UMTAs, the activities under SMART-SUT are complex and multi-layered. For that reason, the strategy is based on the following key principles:

♦ **Long-lasting**: Measures are designed to support capacity development processes beyond the timeline of SMART-SUT, e.g. activities are anchored in a local/state level training authority, where available.

♦ **Multi-layered approach**: Support will address all relevant institutions, incorporate all levels of capacity development (system, organisational, individual) and link stakeholders across units and institutions.

♦ **Demand-driven/Ownership**: Measures are designed around the needs communicated by the city-based institutions

♦ **Synergies**: Seek synergies with different organisations supporting the government partners in their capacity development simultaneously with SMART-SUT.

♦ **Flexibility**: Remain agile and update approaches with changing political priorities, such as the COVID-19 caused need to address the infection risk in urban transport.

♦ **Social Inclusion**: Seek participation of more vulnerable groups (women, children, elderly, disabled, etc.) in all SMART-SUT activities, and sensitise implementation partners for the role of women, children and handicapped in both the development of transport solutions and as end-users of the transport system.

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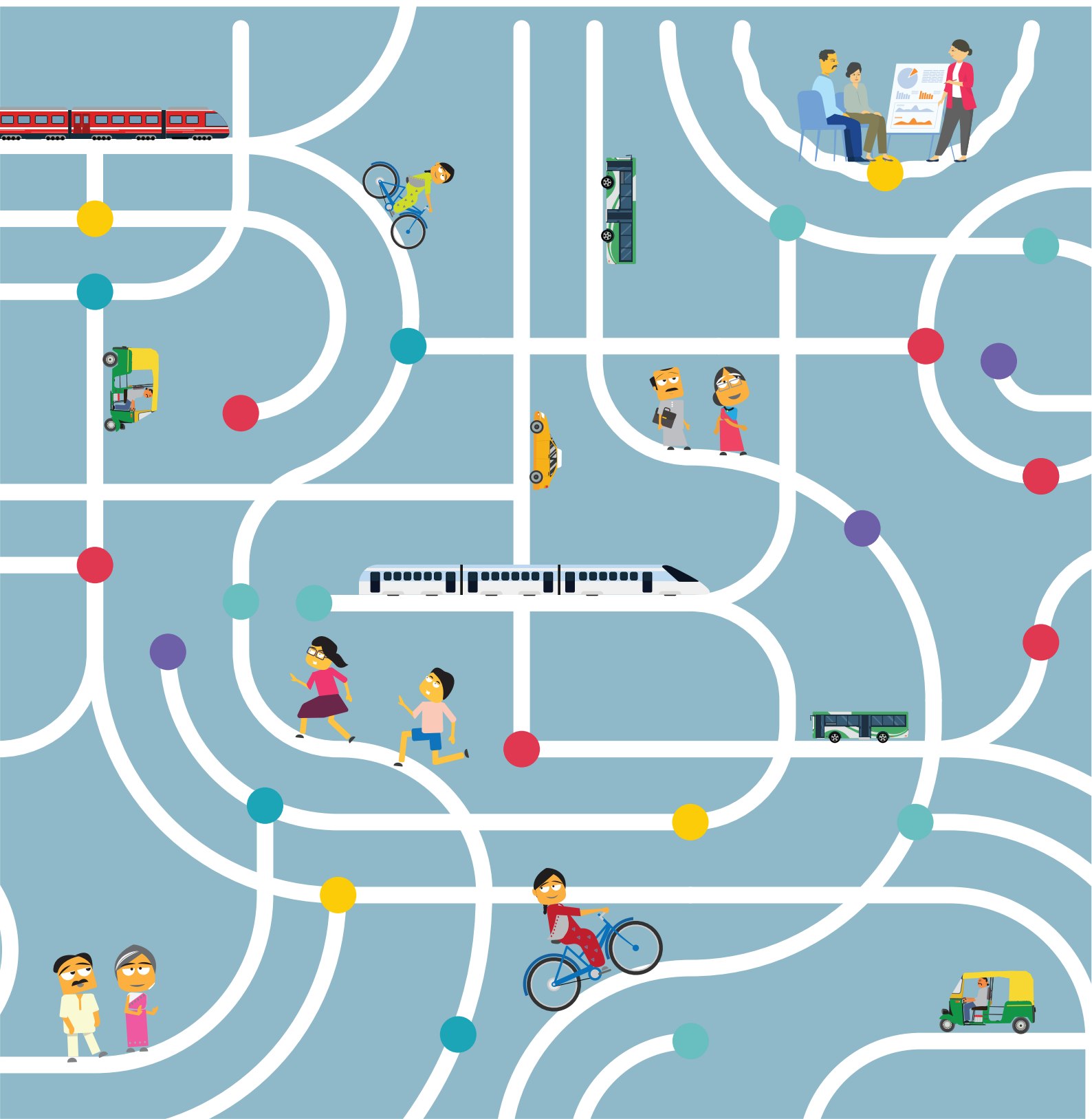
CAPACITY DEVELOPMENT STRATEGY
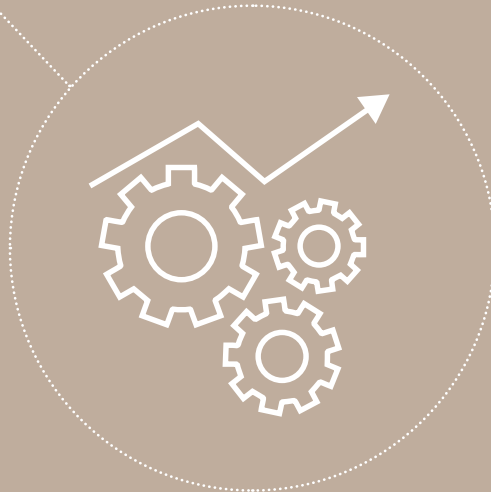
SMART-SUT defines building capacities as a process to be agreed upon and executed by both the implementation partners and the project. The strategy hereby is designed to achieve the ultimate objective that "*the ability of key actors in the pilot cities to plan and implement urban transport projects is improved*". It is developed following a 4-stage process involving the following steps:

integration. In the project, capacities were identified and documented using selected approaches and methodologies from the following assessment tools that were adapted to the SMART-SUT context:

♦ Organisation process reengineering
♦ Functional review
♦ Organisational design
♦ Performance assessment

Assessment	Action Plan	Implementation	Evaluation
Aims at identifying existing and needed capacities	formulate capacity development interventions	Execution of agreed interventions	Assess impact of interventions
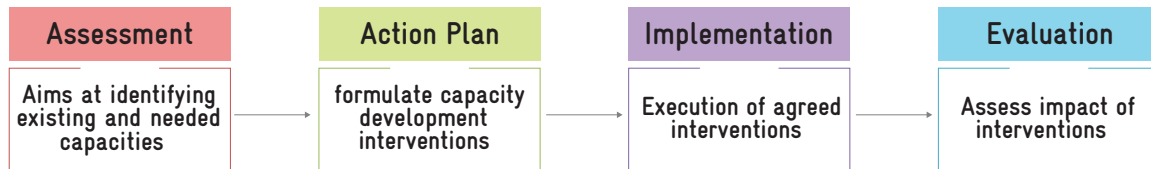
Figure 5: Capacity Development Strategy Sequence

These steps are understood to be sequential but previous steps can be revisited in case changes in the course of the project require modifications to the initial capacity needs assessment. This is for example necessary if legal provisions change for the urban transport mandate of agencies.

3.1 Capacity Assessment

The CD approach for SMART-SUT is based on the principle of building on and adding value to the existing capacities and approaches in partner agencies. The main goal is to assess capacities at the cross-section of individual, organisational and cooperation level and relevant thematic core areas such as planning, financing, and implementation of non-motorised transport, bus transport, sustainable urban freight transport and modal

♦ Risk analysis
♦ Stakeholder analysis
♦ SWOT
♦ Training needs assessment

The assessment methodology was hereby tailored to existing enabling environment, organisation structures and priorities discussed during consultation meetings and progressed in the following sequence:

For example, in Bhubaneswar the city self-assessed the need for a strengthened bus service provider. SMART-SUT was hereby approached with the request to support the city in strengthening their nascent CRUT organisation. The support areas (i.e. organisational structures and processes) were previously assessed by the leadership of CRUT and subsequently vetted by the SMART-

Consultations
Stakeholder mapping priorities & expectations

Data Collection
Qualitative:
Workshops, meetings, focus group discussions

Quantitative
Questionnaires, surveys

Data Analysis
Findings discussed with beneficiary

Actions & implementation strategy derived from analysis

Consultations

Core dimensions:
•Institutional arrangements •Leadership
•Knowledge •Accountability

Capacities:
•Technical •Managerial
•Operational and administrative

Figure 6: Capacity Assessment Sequence

SUT team. In comparison, the Coimbatore City Municipal Corporation (CCMC), has been initiating NMT related projects both as part of the Smart Cities Mission as well as the SMART-SUT support, and requested a detailed capacity needs assessment for its engineers to improve planning, designing, budgeting and monitoring of NMT related projects. In case of Kochi, detailed discussions with multiple actors in the city helped identify areas largely neglected and falling within the powers and mandate of the KMC, as KMC was to be the lead partner for SMART-SUT.

In this project the SWOT analyses was taken up early on in the capacity assessment phase. It evolved as a living and changing matrix. As partners revealed their priorities and preferences, opportunities emerged and so did the accompanying threats. The details of this are reflected in the tables that are presented throughout this document. For example, the overarching challenges/threats of several activities taken up under this project have been discussed in detail in Table 3 above. Table 4 below describes the strengths and opportunities, the selected partners and resulting activities. Tables 5-7 provide an in-depth analysis of the existing strengths and weaknesses of each of the partner agencies, which forms the base of the identification

of intended capacities and subsequent CD measures.

3.1.1 Organisational landscaping and mapping

The stakeholders and cooperation mechanisms in the Indian urban transport sector are manifold and the mandates by institution and d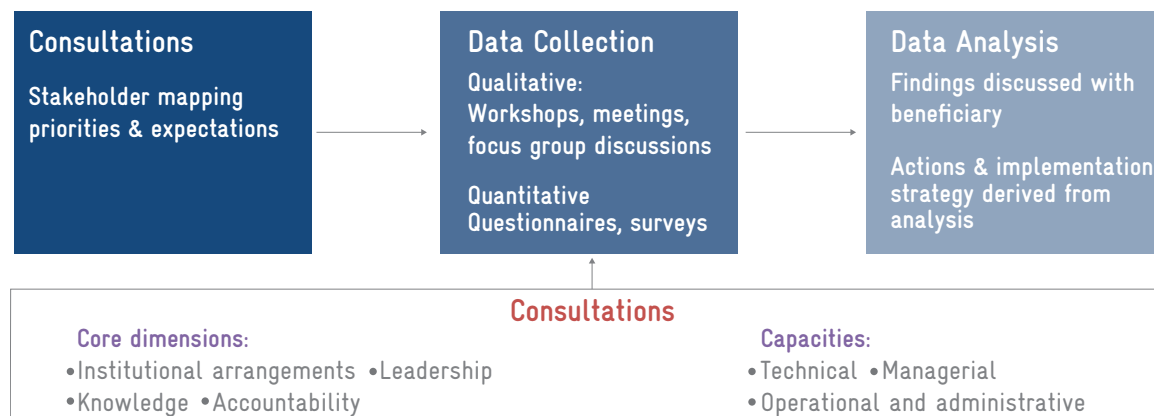epartment are fragmented. During the conceptualisation of the project, support to specific partners was agreed upon in each city with activities geared towards supporting these partners in the execution of their responsibilities in coordination and cooperation. The support is complemented by assisting further organisations that hold a mandate in the urban transport sector. These partners were selected because of their pivotal role in improving urban transport in their respective city to generate the highest impact within the project period. Key actors in this sense are defined as "*actors who are able to use their skills, knowledge or position of power to significantly influence a project*" (Capacity WORKS 2015). Based on a preliminary stakeholder mapping of actors in the UT ecosystem in the three cities, The SMART-SUT project identified the following primary actors in each of the three cities:

The primary actors were then analysed for their

Table 4: SMART-SUT Partners

Partner Agency	Justification for being considered as key and primary actors
BDA, Bhubaneswar	♦ Identified as part of MoU agreement between GIZ and city before start of project in 2017. ♦ Plays a key role when it comes to sanctioning and approving UT plans and projects in Bhubaneswar like mobility plan, city master plan, street design and parking. ♦ Head of BDA also heads BMC and BSCL, thereby ensuring oversight, integration and co-ordination of various UT activities being taken up by these departments.
BSCL, Bhubaneswar	♦ Given they are the SPV for Smart City projects and headed by the same person who heads BDA, they also work on technology aspects of UT projects and are responsible for data and IT related aspects of UT projects.
CRUT, Bhubaneswar	♦ Main agency responsible for planning, management and operations of public transport services (buses) in the city. ♦ In 2018, head of CRUT was also the head of BMC, BDA, BSCL and requested SMART-SUT to help the newly formed organisation to stand on its feet and start operations.

Partner Agency	Justification for being considered as key and primary actors
KMC, Kochi	♦ Identified as part of MoU agreement between GIZ and city before start of project in 2017. Centre for Heritage Environment and Development (C-HED), an institution fully owned by the KMC mandated to give academic and research support to KMC is the nodal agency designated for coordinating all international technical cooperation projects including SMART-SUT. ♦ Moreover, the state partner for GIZ in Kerala is Local Self-governance Department (LSGD) and not the state's Transport Department for the SMART-SUT project. This also paved way for KMC to become the primary partner for the project in Kochi. ♦ In the state of Kerala, transport is a state function, though in many other states in the country, the transport has been made a ULB function as per 74th Amendment Act. Hence, KMC does not have the mandate to plan or approve transport projects. However, SMART-SUT is anchored through KMC, all project proposals developed by KMC under SMART-SUT, require approval by KMC Council. This is also true for other mobility projects anchored in agencies like CSML and KMRL, given KMC is responsible for controlling the land under KMC's jurisdiction. However, implementation of the projects will need to be through close coordination with state level agencies.
EJADCS, Kochi	♦ Ernakulam Jilla Auto-rickshaw Driver's Co-operative Society is a primary mobility stakeholder in Kochi from the perspective of implementing last mile connectivity and intermodal integration solutions in Kochi. Recognising the need to strengthen the institutional structure and in house capacities of EJADCS, KMC proposed to undertake the same and have included the activity in the KMC Budget speech of 2019-2020. ♦ Based on request from KMC, GIZ has agreed to provide seed funding for a pilot e-auto demonstration, which involved working closely with KMC and EJADCS. ♦ Also, society plays an integral part to unify all trade unions and represent the auto drivers in the district, which is crucial to launch new ventures like the shared feeder auto operations using electric three-wheelers; which was a failure in other cities due to lack of such umbrella bodies/societies. ♦ Society was formed with an objective to support the integration (fare, physical integration of modes, etc.) of auto rickshaws with other public transport systems in the city.
CCMC, Coimbatore	♦ Identified as part of MoU agreement between GIZ and city before start of project in 2017. ♦ Commissioner, CCMC during national level project workshop during July 2018 requested GIZ to support Coimbatore smart city projects to strengthen the NMT infrastructure in the city. ♦ Responsible for all urban infrastructure in the city, including roads, bus stops and streets. Street improvement and maintenance is the main function of CCMC and jurisdiction of over 80% of the streets in the city falls under CCMC, making provision of NMT friendly facilities, its default mandate. ♦ Smart city mission being implemented through CCMC and majority of mission projects are concentrated around NMT improvement.
TNIUS, Coimbatore	♦ Training institute for all urban local bodies in Tamil Nadu State. ♦ Already providing trainings to CCMC engineers on road geometric design, bus stop planning, tendering, street lighting and energy conservation. ♦ Identified as training partner by GIZ for all projects under the urban cluster; formalised by signing of an MoU in 2020. ♦ Important actor to institutionalise training modules/trainings in Tamil Nadu.

Partner Agency	Justification for being considered as key and primary actors
TNSTC, Coimbatore	♦ Primary stakeholder in urban transport ecosystem in Coimbatore. ♦ Public transport operator in the city. ♦ Main agency responsible for planning, operating and maintaining the bus system in the city. ♦ Closely interact with CCMC as CCMC maintains all bus stops and terminals in the city. ♦ SMART-SUT supports TNSTC in improving bus operations in the city.

various urban transport related functions (cf. figure 7 below) and the roles they currently play for each of these functions. This helped form the preliminary analyses for capacity development that have been described in Table 5-7 below. These tables also give a clear indication of the intended capacities for each of the partner agencies.

These functions translate to roles and responsibilities in the urban transport sector, which are outlined in the table below for the SMART-SUT's primary partners:
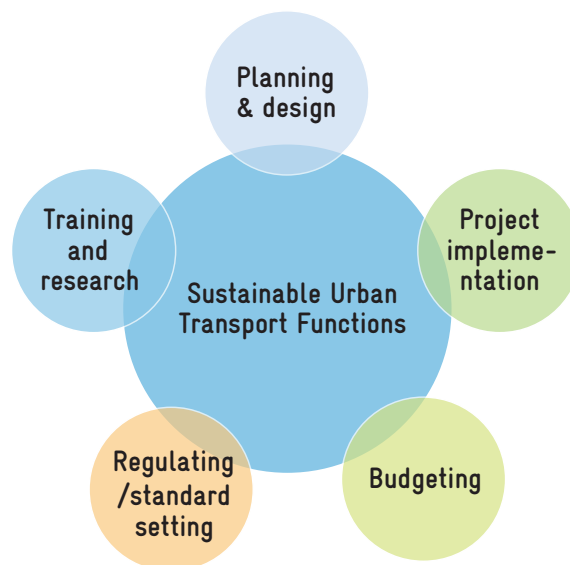

Figure 7: Urban Transport related functions relevant from a city's perspective

Table 5: Partner roles and responsibilities – Kochi (Existing Capacities)

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
KMC, Kochi Role: Road development works, operation of ferry on selected routes and jankar services (Ro-Ro) Established in 1967.	◆ Urban transport as a function is not transferred to ULBs and is still a state function in Kerala. ◆ Engineering department plans road development projects as per DTPS. ◆ Other UT projects are planned by external state level agencies like SWTD KSINC, KSRTC, KURTC. ◆ CSML being an SPV with 50% stake with KMC, seek approval for all projects from KMC. KMRL on the other hand is a state level agency and does not coordinate with KMC for any of their projects, apart from acquiring permit to use space on KMC owned roads. ◆ 74th Constitutional Amendment and decentralisation in Kerala has paved way to a bottom up approach in city planning, which gave local bodies the mandate to prepare master plans of cities. In Kochi due to lack of in-house capacity, the Town and Country planning Department prepares the same, which requires approval from KMC Council. ◆ FKI plan document prepared by SMART-SUT will be a strategic planning document that will explore ways in which KMC can engage more actively in the urban transport planning of the city. The plan document will provide recommendations on various focus areas in transport, including possible changes in processes followed by KMC, propose co-operation mechanism between agencies, strengthen the legal provision of KMC to prepare master plan (focusing on transport projects and proposals) and improve in-house capacities of individuals in KMC. ◆ There exists a Traffic Advisory Committee in KMC with representation from various state transport agencies to guide city in traffic and transport related issues (ex: roads and road safety, bus stops, etc).	◆ Identifies project identification based on political and other interests and suggestions made by preceding documents like CMP: E.g. SA road is mayor's precinct. ◆ FKM area was selected because of Kochi Muziris Biennale. FKM sub-packages are in line with CMP. Plan doc is being prepared to fill the planning gaps in KMC with other concerned agencies. ◆ KMC does not generally initiate new UT projects on its own, unless it has donor support. Road projects and improvements are generally based on Detailed Town Planning schemes. ◆ Project implementation is fully tendered out. These are the only transport projects identified and implemented by CSML and require approval from KMC. This also includes mainly road works and some IPT modes (still in planning stage). ◆ Role limited to addressing public grievances for roads (generally raised through media). ◆ KMC is involved in monitoring of and coordinating with external consultants when it comes to bilateral or development cooperation projects. This is mostly done through an independent technical arm of KMC called C-HED which manages all the urban development projects anchored in KMC through international technical cooperation.	◆ Budget for UT in KMC's budget speech is in larger technical assistance category. ◆ Budget allocations depend on fiscal year priorities. ◆ Implementation ◆ Funding mechanisms ◆ SCM funding limited to one area in Kochi. ◆ If KMC wants, it can add UT projects as proposals in annual budget and request to state government.	◆ KMC can issues guidelines related to planning and street design for projects. ◆ KMC can regulate transport services through GOs, for example KMC has applied for special Government Order permitting operations of autos on shared basis to State transport department.	◆ None provided as routine part of KMC operations. Only through opportunities provided in development cooperation projects.

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
KMC, Mayor Role: Heads KMC and drives decision-making KMC, Councillor Role: Political governing body (Leadership at KMC).	◆ Any project (road/NMT) by KMC (under central/ state funded schemes) requires approval from Mayor and the Council. ◆ UT projects require final approval from KMC council.	◆ Political interest of ruling party/ mayor play a vital role in project identification under technical co-operations (E.g.: SA road falling in mayor's ward). ◆ Ward level UT challenges identified (limited to road improvement, improvement of bus stops).	◆ Can guide projects to be taken under budget or plan fund. ◆ Budget allocated for projects submitted by ward councillors.	None	◆ None. Only through opportunities provided in development cooperation projects.
KMRL Role: Joint venture company with equal equity contribution of Government of India and Government of Kerala Established in 2011.	◆ SPV mandated and controlled by the state government for planning and implementation of UT projects in Kochi like Kochi Metro, Water Metro; including measures to ensure mode shift from private to public transport and establish an integrated multimodal transport system in Kochi. ◆ Prepared CMP and takes up other transport projects that complement the metro and contribute towards increasing patronage of metro. ◆ Has a strong technical team of transport planners and engineers.	◆ Guided by CMP. This used to be taken up by Urban Transport department in KMRL. However, from Nov 2019 onwards UT is dissolved.	◆ KMRL receives funds from state and prepares budgets for all transport projects its involved in. KMC also receives multilateral and bi-lateral funding too for urban transport initiatives.	◆ Works closely with GoK and prepares guidelines, government orders etc related to UT projects undertaken by KMRL. e.g.: Acquired GO permitting the operations of shared auto rickshaws as feeder to metro service in Kochi.	◆ In-house training and development activities taken up regularly.
CSML Role: SPV set up under SCM to enhance speed and delivery of urban development projects in the ABD area. Established in 2007.	◆ Have identified urban transport projects (road development/improvement, IPT services etc) and is responsible for the planning and implementation of the same.	◆ Through detailed Public consultation process. ◆ Through regular board meetings, state GoK and KMC monitor the progress of work and resolve issues pertaining to progress of projects. ◆ CSML seeks KMC Council approvals for all the projects planned by them.	◆ They only spent funds made available under smart city projects.	None	◆ In-house training and development activities are regularly taken up.

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/providing guidelines	Training and development
Ernakulam Jilla Autorickshaw Driver's Cooperative Society (EJADCS), Kochi **Role: aggregate the autorickshaw operations for seamless mobility(diesel, petrol, electric and CNG and metro feeder shared e-rickshaws)** **Established in 2019 as an umbrella body to support first/ last mile connectivity and to steer the operations of three wheelers (including shared e-auto rickshaws) in Kochi.***	◆ Newly formed society aims to engage activity in planning (launch shared autos/rickshaws as feeder to PT, introduce electric three-wheelers in the city, identify demand routes and operate feeder systems on these routes in a scheduled manner with fixed rates, etc). However, lack technical in-house team and relies on technical support from KMRL and technical cooperation projects like SMART-SUT for the same. ◆ Cooperate with KMC, KMRL, MVD, Traffic police, GOK, etc. for operations of auto rickshaws (diesel, CNG and electric) and e-rickshaws in the city.	◆ Responsible for implementing and monitoring all projects planned for three wheelers in the city. ◆ Struggle to initiate and monitor project implementation.	◆ Depend on external funds such as CSR funds, government subsidies (KMC and KMRL), etc. ◆ Developing Business plan/model on fund generation through alternative revenue sources (ex: advertisements in autos) to support in operations of three-wheelers in the city.	◆ Signed agreements with KMRL, OEMS, JDI (KMC in future) for operation of shared e-autos. ◆ MVD permit required, and the vehicles need to be registered with the Road Transport Authority. ◆ The Society can grow as a body to influence auto operation guidelines going forward, especially for feeder services. Society can prescribe route and fare with approval from MVD.	◆ None but substantive training is needed as newly developed organisation. ◆ Does not have resources to do any research and training on its own.

* The society, though emerged from the co-ordination of different political unions (such as CITU, INTUC, AITUC, BMS, STU and TUCI). It has no inclination to any political fractions and works independently for the benefit of auto drivers of Ernakulam. First of its kind non-political body dedicated to the welfare of the auto rickshaw drivers.

Table 6: Partner roles and responsibilities – Coimbatore (Existing Capacities)

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
CCMC - Coimbatore City Municipal Corporation Key Role: Driving urban development in the city of Coimbatore Established in 1981.	◆ Mandate for road and bridge development, urban planning[6] (74th CAA), public streets[7], and operation of bus terminals/stops. ◆ Lacks any distinct or unique mandate across all urban transport topics.	◆ Identify projects pipeline based on infrastructure requirements caused by demographic/land-use changes, using Master plan, Comprehensive Mobility Plans (CMP) and City Development Plan (CDP) documents. ◆ CCMC is the nodal agency for project supervision coordinates with relevant agencies. ◆ Projects > INR 1crore need state government approval. ◆ Projects >5 Crore need administrative and technical sanction from state government.	◆ Budget for urban transport projects (Streets, bus stops and terminals) are part of CCMC budgeting. ◆ No separate budget for sustainable UT modes like NMT, as all transport budget heads are generally clubbed under roads and bridges and special projects.	◆ Possess powers to regulate the activities on streets (incl. parking management, encroachment removal, advertisements). ◆ Follows IRC standards and any other relevant standards.	◆ Receives training through TNIUS (Tamil Nadu Institute for Urban Studies). ◆ Training topics, schedule, eligible departments all defined by TNIUS. ◆ Topics include road geometric design, bus stop planning, tendering, street lighting and energy conservation. ◆ UT not part of schedule and is generally requested through Commissionerate of Municipal Administration who is also the implementation partner of SMART-SUT at state level.

[6] 74th CAA
[7] CCMC Act 1981 (Section 236 to 249)

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
TNSTC - Tamil Nadu State Transport Corporation Limited (Coimbatore) Established: 1972; TNSTC (CBE) Ltd in 2003.	◆ To provide efficient, economical, and co-ordinated transport facility to the public in the jurisdiction of Coimbatore, Erode and The Nilgiris Districts. ◆ TNSTC operates intercity bus services to cities within Tamil Nadu, and neighbouring states. ◆ It also operates public transport bus service in many cities of Tamil Nadu, with the exception of Chennai, where the public bus service is operated by MTC, a subsidiary of TNSTC. ◆ Operates urban bus services in Coimbatore. ◆ Studies related to bus operations including bus stop locations, bus terminal locations are carried out in consultation with TNSTC. ◆ Since TNSTC operates and maintains the city buses, the overall route planning, fare fixation and fleet management are carried out within TNSTC in collaboration with Regional Transport Authority.	◆ While TNSTC is not involved in regular planning of UT projects, it acts as key stakeholder in public transport planning. ◆ Being the only public bus operator in the city, TNSTC is key organisation to be involved in long-term urban transport projects for better connectivity and formal integration with other modes of transport. ◆ Interacts with local authorities for any infrastructure requirement. ◆ Route planning and rationalisation of bus routes are carried out within TNSTC. ◆ No specific data intensive analysis is carried out.	◆ While TNTSC CBE Ltd operates as independent organisation, Transport Department at state level takes decision on new projects and funding. ◆ Procurement of new fleet or any changes to the PT infrastructure by them needs state level approval.	◆ Follows the guidelines of state transport department. ◆ Follows safety standards as per MV Act. ◆ ASRTU provides guidance for various aspects of bus operation.	◆ Institute of Road Transport is the in-house training canter for TNSTC. ◆ All trainings related to technical and mechanical are carried out by/at IRT.

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
TNIUS - Tamil Nadu Institute for Urban Studies (TNIUS) Role: State-level training center for all ULBs across Tamil Nadu Established in 1981.	◆ Imparts knowledge on urban development, e.g. UT planning, to ULBs in TN.	◆ No active role here. ◆ Absorbs trends and needs from ULBs to include in future trainings.	◆ Training funds are collected from ULBs, unless the specific training is sponsored by any agency.	◆ Follows guidelines that govern the mandatory requirement of urban transport related trainings.	◆ UT related trainings for CCMC focus on road geometric design, bus stop planning, tendering, street lighting and energy Conservation. ◆ Uses external trainers for in house or off-campus Trainings. ◆ Lack of Training of trainers, training module development and course structure for UT.

Table 7: Partner roles and responsibilities – Bhubaneswar (Existing Capacities)

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
CRUT – Capital Region Urban Transport, Bhubaneswar Role: Plan, manage and operate public transit and public bike sharing services in Bhubaneswar, Cuttack, Puri, Konark and Khordha Established in 2018.	◆ Formulation of policies and planning for operationalisation of City Bus Services and other public transport services are attended to in-house and through external support. ◆ Planning is mostly carried out based on public requests to avail the service. ◆ Priority topics are route planning, planning for e-auto rickshaws and buses, fare fixation. ◆ Planning requires more in-depth impact assessment/ feasibility studies and data for evidence-based planning. ◆ Involve city-based institutions upon need (e.g. BSCL = service provider for ITS). ◆ Board of directors makes major decisions.	◆ Project identification based on public demand with positive intention to increase ridership and provide better service to passengers. ◆ Most planning decisions are based on consensus among staff members or taken by higher level of staff members. ◆ Involves third party agencies for specific, technical assignments, e.g. IT service provider for ITS facilitation. ◆ Specialised in monitoring and implementing field operations (60% of work force). ◆ Cooperate with BDA for infrastructure developments .	◆ Budget for CRUT to operate public transport services is sanctioned and funded by state. ◆ Annual budget varies- 1.44 Billion INR is budget for 2020-21 which will be paid in instalments 0.19 Billion INR received as of 05/2020. ◆ CRUT manages to recover 40% of recurring expenses through fare revenue.	◆ CRUT can issues penalties and incentives for operators and users like penalty on ticketless travellers, reduction of fare, etc.	◆ Given CRUT is a young organisation that is still building its team, it engages regularly in training and development activities for all its employees by inviting subject experts, liaising with OSDA or through support of technical cooperation projects like SMART-SUT.
BDA, Bhubaneswar Role: Planning &regulatory agency at larger regional/ area scale for Bhubaneswar. Established in 1983.	◆ All major transport strategies and projects are planned by BDA through preparation of CDP. ◆ Responsible for preparation and approval of the city's mobility plan, Land use planning and NMT integration, Identification of corridors for creating NMT infrastructure. ◆ Enforcement to eliminate encroachments on cycling tracks. ◆ Project priorities: new roads, transit corridors, NMT network, freight corridors, road widening, interchanges, sectoral strategies etc. ◆ CDP preparation is outsourced but TOR is framed by BDA with help of Master Plan & Urban Transport Branch. Staff strength of these branch is b/w 2-3 including clerical. ◆ Projects taken up from CDP or otherwise by UT branch of BDA on approval of HUDD & state govt. ◆ Defining Parking zones through land use plans. ◆ Provision of space for multi-level parking lots.	◆ Project identification and implementation responsibility rests with concerned dept like Engineering department, UT, TP etc. mainly road related projects (ring road, bus terminals, TPS, redevelopment plans, TOD, etc.). ◆ Operational and maintenance rarely done by BDA, usually mandate of implementing agency (CRUT, BMC, etc.). ◆ Within BDA, each dept is concerned with its own domain that is a particular aspect/part of the project. So, each takes up work as per that only. ◆ Areas for development of bus operations through land use plans, identification of BRTS corridor, land for Bus depots and for future multi-modal transit hubs -all come under BDA' s mandate.	◆ There is no separate fund for UT rather it is for specific projects. ◆ BDA can allocate funds to projects through its annual budget or through central govt schemes like AMRUT/HRIDAY. ◆ Sometimes BDA seeks partnerships with other countries, bilateral and multilateral bodies like WB, ADB etc to push projects.	◆ Regulates BBSR based development through zonal regulations (ZRs), building plans, approvals, etc. ◆ CDP & ZRs are the prime regulatory tools. Both are statutory mandates. All other tools are usually offshoots from these two. ◆ SD guidelines were recently created by BUKC, for BDA. ◆ BDA has the mandate for land use regulation, and therefore it is a key player to regulate spaces for off and on street parking.	◆ Regularly sends officials to capacity development seminars organised in context of a project by MoHUA, develop cooperation partners, etc. ◆ Capacity development through BUKC. ◆ Lack of a proactive training regime for planners and staff on a regular basis.

Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
BSCL **Role: SPV for Smart Cities Mission plans/ projects** **Established: 2016**	◆ Geographical planning scope limited to one area in the city: micro level planning. ◆ Provision of infrastructure, design, smart solutions, ITS, smart roads, automated signals, smart mobility card, etc. ◆ Planning done by in-house staff and external consultants. ◆ Construction and maintenance of on street and off-street parking infrastructure. ◆ Framing rules regarding parking zones. ◆ Collection of parking fees. ◆ Development of Parking Policy and Parking Master Plan.	◆ Follows the SCM project guidelines. ◆ Engineering department implements and monitors UT projects. ◆ Preparation of road design standards which includes NMT corridors. ◆ Tendering of design and implementation of PBS system.	◆ Receives its project budget from the Smart Cities Mission scheme.	◆ Follows SCM regulations. ◆ Responsible for vigilance, data collection and monitoring and enforcement for thinks like traffic along with other agencies through a control and command centre.	◆ Most of the team is external consultants trained in their fields, hence limited trainings conducted, unless something on-the-job and specific is identified.
BMC **Role: provide basic services to the residents of the city** **Established: 1948 as notified area and 1979 as municipality**	◆ Responsible for area level planning including infrastructure like roads, parking, vending, walkways. ◆ Space for bus shelters. ◆ Identification of BRTS corridors. ◆ Land for Bus depots/terminals. ◆ Identification of PBS dock-less station locations. ◆ Identification of roads where bicycling lanes can be implemented. ◆ Construction and maintenance of footpaths.	◆ Usually takes up projects from CDP under various schemes like AMRUT etc. ◆ Engineering department responsible for UT. ◆ Focuses on implementing roads, housing, footpath, cycle track (along with BDA, works), parking areas, vending zones creation etc. ◆ Parking is looked after by dedicated cell under Revenue Department. ◆ Usually it contracts out the operation and maintenance to various private agencies. ◆ Construction and maintenance of bicycling lanes.	◆ Loans, grants from various central schemes, revenue receipts like holding tax, advertisement tax, rent from owned properties, like markets, complexes fees and user charges, like development fee.	◆ Along with other agencies plus through contractors.	◆ Very rarely officials get a chance to attend general transport or other seminars/ WS.

3.1.2 Detailed assessment on city-level

The capacity assessment in the three pilot cities has been an ongoing and self-evolving process. At the start of the project, broad areas for capacity development needs were assessed using a variety of instruments (in-person discussions, group discussions, workshops, and direct requests from heads of partner agencies). Time was spent to identify existing capacities in terms of strengths and weaknesses of the concerned departments or individuals, so that measures proposed for capacity enhancement built on the existing initiatives, priorities, and successes. The regular updates are necessary as the stakeholder landscape in the cities changes continuously. As the technical assistance for projects started to deepen, a keener understanding of the areas that needed support started to emerge and a need to carry out a formal organisational and individual needs assessment was identified. especially in areas that pertained more explicitly to capacity development, i.e., institutional strengthening (OB1) activities. These areas were identified jointly with the partner agency and SMART-SUT with periodic validation of findings. Moreover, significant changes were induced by the support of SMART-SUT through the strengthening of organisations such as CRUT in Bhubaneswar and EJADCS in Kochi. For that reason, the tables below provide a comprehensive overview of older and newer stakeholders subdivided by city. Moreover, the suggested capacity development interventions in each city support the partners in improving their thematic priority area (e.g., non-motorised transport, first/last mile connectivity, e-vehicles). The support hereby is aligned with the principal idea of building capacities implicitly and explicitly.

Tables 8-10 detail out the existing and intended capacities, the gaps and sources of assessments used to carry out the capacity assessment of the primary partner agencies in the 3 cities. The existing capacities attempt to take a broad (yet 360 degree) view on the various strengths and weaknesses existing within the partner agencies and proposed interventions (or intended capacities) stem from the gaps in capacities identified by the partners.

In **Kochi**, the priority areas to touch upon as part of the SMART-SUT support were identified in a joint consultation workshop with AFD and all key stakeholders of the city (like KMC and KMRL) in March 2018. It was agreed to support the city in five pillars: 1) Integration, 2) Participation, 3) Land-use and mobility planning, 4) Information and Data Management, and 5) Institutional Coordination and Capacity Development. Moreover, a capacity assessment of KMC's mandate role, its existing responsibilities and capacity gaps is carried out by an independent institute. SMART-SUT focusses on developing capacities in KMC and the newly founded auto society EJADCS on topics such as leadership development, skill development of various staff levels, strengthening existing and creating new teams/cells for the better execution of their responsibilities. These efforts are being manifested through formal cooperation agreements among organisations in Kochi and complemented by the support to formulate an UMTA.

The CCMC, in its role as primary actor for citywide planning, is the primary partner and beneficiary of SMART-SUT's support in **Coimbatore**. The capacity assessment in the city is continuous as the priorities of CCMC develop throughout the project duration. The initial assessment through face-to-face meetings between the GIZ team and CCMC officials resulted in a prioritisation of improving NMT and adjacent processes ongoing in the city. This is supplemented with a capacity assessment at CCMC on their capacities to plan, design and implement these NMT projects. CCMC receives support by TNIUS in implementation of CD trainings. However, the absence of inclusive street design modules and the limited technical details in the remaining urban mobility modules requires a comprehensive CD approach in Coimbatore. It was agreed to advance TNIUS' training curricular with state-of-the art transport concepts and a train-the-trainer approach, so that they can develop technical capacities at CCMC on NMT, the management of projects

and accompany the process of establishing a cross-department NMT cell at CCMC. The activities on NMT are complemented by supporting TNSTC in their bus service provision. TNSTC is a primary stakeholder when it comes to improving public transport services in the city and state.

In **Bhubaneswar**, the urban transport mandates are subdivided across various institutions with fragmented responsibilities. In the initial consultations and continuous assessment through interviews and surveys, BDA, CRUT, BSCL and BMC have been identified as the nodal agencies for the urban mobility system in the city - all of which are very active and have a vision for Bhubaneswar's future mobility landscape. The topics taken up under SMART-SUT have been requested by the different agencies and were subsequently narrowed down to feasible support packages. They range from the handholding of the advancement of CRUT as key public transport service provider, parking, street designs to a

holistic strategy document outlining the 2040 low-carbon urban mobility system (LCMP). Especially CRUT receives continuous support in restructuring, cooperation mechanisms and building individual capacities for senior to junior staff, from management to bus drivers. Simultaneously, BDA, BSCL and BMC receive support in establishing and implementing a steering committee for the comprehensive development and implementation of the LCMP that also includes an extensive public participation campaign.

Details on the capacity assessment and the derived interventions can be found city/state-wise below in tables 5-7.

The city-wise capacity assessment revealed the complexity in terms of conflicts of interest, navigating between city and state level mandates, and the varying thematic priorities. The action plan in chapter 3.2 elaborates the suggested interventions further towards solution-oriented actions that are tailor-made for the respective agency.

Table 8: City–level Capacity Assessment – Kochi

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
KMC	**Individual level:** ◆ At the leadership level, there is open-ness to understand concepts relating to all transport project being planned under various technical cooperation projects by KMC. ◆ In-house technical team (engineering department, KMC) for the development of roads in the city. The staff is hired on a rotational basis and not permanent for KMC. **Organisational level:** ◆ There is a lack of processes and guidance in-house within KMC to monitor and co-ordinate UT projects that come its way, especially through technical cooperation. ◆ UT projects other than on road development are tendered out to external organisations because KMC has yet to develop in-house abilities on UT. This is due to the fact that UT has been a state mandate and is not presently managed by ULBs in Kerala. ◆ C-HED as an autonomous yet closely tied institution to KMC, provides managerial support and coordinates UT projects initiated by KMC through technical cooperation. ◆ KMC is exploring formation of working groups with stakeholders (MVD, GOK, Traffic police, auto society etc) to facilitate transport projects now being initiated and planned by KMC. **Cooperation level:** ◆ In the context of KMC preparing project proposals for various UT projects under various technical cooperation; working groups maybe formed specific to each UT project under the Traffic Advisory Committee. Through this KMC can ensure better coordination and seek special permits for engaging in implementation and operations of UT projects. E.g. KMC can seek issuance of GOs from state government for operation of shared e-autos on fixed routes. ◆ KMC can better utilise its position and powers to become the focal point of mobility related activities in the city, esp. when it comes to road re-design and last mile connectivity.	**Individual level:** ◆ Technical expertise: The KMC engineers responsible for road development generally lack expertise and know how on new concepts on Complete street design, promoting PT, IPT, NMT etc. ◆ Lacks inhouse capacity to review the work done taken up by technical cooperation projects like SMART-SUT. ◆ In house capacities to implement and manage road projects is missing. **Organisational level:** ◆ Lack of transport planners in KMC and C-HED and the existing staff of both agencies lack experience in transport planning, Electric mobility etc. Hence KMC relies on technical corporation project support solely for planning and implementation of all projects started under technical corporation projects. ◆ Given that Mayor will represent KMC in the UMTA board once it is set in Kochi, there is at present no in-house transport team in KMC/C-HED as expert advisory. Presently such a team does not exist. ◆ Understanding of measures and tools to access financing for UT projects needs to be enhanced. **Cooperation level:** ◆ Need for better coordination with GOK, CSML, KMRL, MVD, Traffic police and other state transport bodies identified on planning and implementation of UT projects by KMC.	◆ Consultations: Launch of workshops together in 2018. ◆ Participants: ◆ Mayor, KMC, C-HED, AFD, GIZ ◆ Face to face meeting jointly with AFD on capacity development of partner agencies (MoM dated 23-11-2018 approved with list of projects identified). ◆ Regular meetings: with Mayor, KMC on capacity development activities of KMC and EJADCS ◆ Sources: MoMs (some issued and few yet to be issued by KMC).	◆ Leadership Development: of C-HED and core team in KMC through trainings. ◆ Technical Skills enhancement: Trainings on how to use the guidebook on roadway design template for city engineers. ◆ Creating toolkits/guidebooks for KMC to better plan and manage projects: Development of Street design guidebook (specific to fort Kochi) which will guide KMC engineers on concepts like 'complete street design, NMT corridor design etc). ◆ Development of internal project management module to guide KMC's involvement with technical cooperation partners, with clear instructions on methodology to be followed by technical co-operations. ◆ Setting up Agreements: Drafting JDI between KMC and EJADCS on e-auto project implementation. ◆ Acquiring Legal Permits for taking up new roles: Supporting KMC to acquire a Government Order allowing operations of shared feeder services in KMC. ◆ Formation of New UT Cell/Team within KMC: to pursue projects like IPT feeder, route rationalisation, strategy documents addressing seamless mobility and connectivity etc.) it takes up with support of various technical co-operations like SMART-SUT and also as advisory to UMTA. It is important to ensure that this team is hired on a long-term basis, ensuring that the staff is retained from inception to completion of projects; longer than the typical transfer period followed for general staff/engineers in KMC. ◆ Formation of working groups to facilitate the smooth planning and implementation of UT projects initiated by KMC. ◆ Support to KMC and GoK in formation of UMTA in Kochi.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
Ernakulam Jilla Autorickshaw Drivers Cooperative Society (EJADCS)	◆ First of its kind in India which brings together representatives of different political parties on the same stage. ◆ The Society is led by a 15-member board of directors, comprising of representatives from six prominent trade unions of the city with varying educational & technical backgrounds. ◆ Able leadership and strong political will power: Auto drivers in the city are affiliated to these trade unions, whose representatives are the Society's board members. Thus, the Society is able to influence and foster a collective team spirit amongst the auto drivers. ◆ The six trade unions have been running regular diesel based and single hire auto operations smoothly till Feb 2019, which has now been taken over by Society (City coordination members from these six trade unions are board members of the Society since its inception). ◆ Little experience in operational and administrative procedures related to procurement, availing loans and other benefits under the Society framework. ◆ The Society in partnership with KMRL had successfully trained the drivers who operates the metro feeder e-autos on behavioural aspects and road safety. ◆ The Society has limited financial resources and needs to develop a strong business model to overcome this challenge. ◆ With over 3500 members(drivers) enlisted in the Society, and a board of directors with strong political influence, the Society enjoys the benefit of political willpower and workforce to support their mandated operations.	**Individual level:** ◆ Almost nil technical and managerial expertise for planning and for monitoring of day to day operations of e-autos (especially important in an operational model, where the vehicle ownership rests with the Society). **Organisational level:** ◆ New organisation, with no prior experience of planning, operating and monitoring e-autos and the processes and procedures involved in operating e-autos. ◆ Both technologically and managerially operating shared e-autos is a new arena for the society. They are not familiar with processes like vehicle procurement, registration of vehicles, availing financial assistance, monitoring of operations etc. ◆ Yet to fully comprehend the importance of the role they could play, i.e. being the key driver for first and last mile connectivity and accessibility in the city. ◆ Limited resources: Both techno-managerial persons (to carry out actual tasks) and financial resources. ◆ No dedicated techno-managerial resources (currently, only the board members are supporting the functioning of the Society), infrastructure (office space requirement), financial resources, administrative and operational procedures & formats for vehicle procurement, legal compliances etc. **Cooperation level:** ◆ Mechanisms and platforms for coordination with KMC, KMRL, Motor Vehicle Dept. for operating shared e-autos are yet to be developed.	◆ 2 Stakeholder consultations with local coordination committee members from 6 trade unions from Fort Kochi and Mattancherry area (Dec 2018 and Jan 2019). ◆ Various other meetings were conducted with City coordination committee members as part of meeting organised by KMRL in 2018 and 2019 during which the shared e-auto project in Fort Kochi was discussed. ◆ Letter from EJADCS to GIZ requesting support for institutional strengthening and technical assistance (letter dated 17.01.2020). ◆ Formal request from EJADCS.	◆ Individual capacity development of board members on running a cooperative model, procurement procedures, availing loans, drafting TORs and RFPs, management of operations, etc. ◆ Skill development of e-auto drivers on operational, soft skills and gender aspects. ◆ Strengthening team and providing hiring support for key personnel to support the technical and managerial tasks involved in e-auto operations. ◆ Guidance for procuring e-autos as this will allow the Society to expand its operations beyond the rental model. ◆ Formulating RfP and other documentation formats for vehicle procurement and for availing financial benefits. ◆ Facilitate improved cooperation with partners/ stakeholders by setting up of working groups and garnering the necessary legal support. ◆ Development of organisational level manual & video in English and Malayalam on various management and technology related topics for the city.

Table 9: City-level Capacity Assessment – Coimbatore

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
CCMC	**Individual** ◆ Capacities of the engineers: At least 20-30% of the engineers have exposure to mobility interventions under smart city projects. Based on our interactions and discussion with CCMC, it is felt that at least 20% of the engineers have sensitisation towards NMT related infrastructure from previous training. However, there is a huge gap in knowledge when it comes to application of already published street design guides, knowing the current thinking on street design, planning or implementing NMT projects (even at a pilot level) and overall monitoring of consultants who take up NMT projects on behalf of the city. ◆ Learning culture: Within CCMC, there is a healthy culture of peer learning where engineers reach out to other engineers to clarify doubts and other issues. However, this remains informal and limited, thereby not as effective, and widespread as it could be in order to create an internal culture of open discussions and knowledge exchange. ◆ Capacities of leaders: Leaders within CCMC are proactive and sensitisedtowards urban mobility projects and have carried forward the legacy that Coimbatore and Tamil Nadu share, being a pro-NMT city/state in the country. **Organisational:** ◆ The multitude of urban transport projects in Coimbatore has also triggered CCMC's ambition in taking ownership of and becoming a key agency for the implementation of important urban mobility projects in the city like the Eco-mobility corridor and safer streets for pedestrians and cyclists, especially those related to road safety improvements. Coimbatore's City Development Plan (2014) and City Mobility Plan (2015) capture the city's long-term development agenda. Several DPRs (Lake restoration, Model Roads, NMT, etc.) are already committed to be taken up by the city. All these plans clearly list out urban mobility improvement projects. ◆ Guidelines and procedures regarding NMT projects: Despite the above, a formal set of procedures to select, review, finance, implement and monitor NMT related projects is missing in the agency and working approaches on these topics remains ad hoc and only understood by a handful few. ◆ Dedicated teams or cell: In a city having a modal share of 33% for NMT trips, and as an agency responsible for maintaining almost all of the local road network (approx. 2000 km) which includes footpaths and other additional infrastructure that contributes significantly to a pedestrian's mobility experience in the city, there is hardly any staff or teams to working dedicatedly on this topic. **Cooperation level** ◆ CCMC shares Good rapport with other agencies like NH. ◆ Coordination mechanisms: Overall cooperation on UT in the city is good. CCMC staff is generally approached the concerned departments directly for smaller clarification issues, which was found to be quick and effective. However, these continue to be based on personal relationships and departmental equations and a commonly agreed and acceptedstrategy with targets and allocated responsibilities towards NMT projects, is still missing.	**Individual:** ◆ Dedicated staff working on the issue of NMT. ◆ Technical knowledge and comfort when it comes to working on present day street design methods and standard approaches. ◆ Trainings on NMT or knowledge building opportunities related to NMT subjects. ◆ Periodic trainings on street design to keep them updated with the latest happenings and solutions for challenges they may come across in the course of their work. ◆ Demonstration projects for engineers to learn from and leadership to run with. **Organisational:** ◆ Coordinated planning approach to plan and implement the mobility projects seamlessly. ◆ A city level planning document on NMT ◆ Focus on NMT from processes like training for staff, annual budgeting for projects. ◆ Creation of NMT cell within CCMC with dedicated trained engineers on NMT Planning, design, implementation, and operations (maintenance). ◆ Enhanced knowledge on usage of already available street design guidelines according to the use case. ◆ Comprehensive approach towards identifying the training gaps and the feedback on the effectiveness of the training received. ◆ Support to build training focus on urban mobility within curriculum of Tamil Nadu Institute for Urban Studies. ◆ Dedicated budget head in CCMC's annual budget for NMT. **Cooperation:** ◆ A multi-stakeholder platform to discuss and get consensus for NMT projects in the city.	◆ Meetings and consultations over the course of the project. ◆ Jointly organised workshops and stakeholder meetings by CCMC and SMART-SUT (Nov 2018, July 2019 and Jan 2020). ◆ written request from Commissioner (March 2020). ◆ Individual needs assessment surveys and focus group discussions (May-June 2020). ◆ Previous studies done on NMT readiness assessment for Coimbatore. ◆ NMT network plan report.	◆ Scale up organisational and institutional capacity in view of ambitious development plans by individual skill development sessions on NMT related topics for CCMC engineers. ◆ Improve planning, implementation and monitoring of urban transport projects being taken up by CCMC, thereby enhancing its pro-active management capacity in the areas of road safety, NMT planning and design and other related areas ◆ Identify and train in-house trainers/mentors from within the CCMC team and create official positions for them within the CCMC structure. ◆ Development of a dedicated department and/or staff working on NMT issues. ◆ Demonstration projects to build leadership and capacities within CCMC for NMT. ◆ Creation of a city level NMT plan. ◆ Inclusion of budget head on sustainable UT in the CCMC budget. ◆ Create a training calendar and training modules on NMT. ◆ Create a platform led by CCMC to discuss and update on NMT projects in the city.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
TNIUS	◆ At present, Tamil Nadu Institute for Urban Studies (TNIUS), a premier training and research Institute in Urban Management promoted by the Government of Tamil Nadu, plans, and conducts training programs for urban local bodies in Tamil Nadu. ◆ A separate department for urban planning exists in the institute with one full time Assistant Professor. ◆ Well equipped with training infrastructure. ◆ Backed up by State government for continued funding for research. ◆ Has access to various other institutes in India and faculty frequently attend trainings under other programs include urban mobility. ◆ As per initial conversations with faculty at institute, it is observed that there is lack of dedicated training program in urban mobility. ◆ The current topics covered by them include road geometric design, bus stop planning, tendering, street lighting and energy conservation. Training topics, schedule, eligible departments all defined by TNIUS and this is not based on any training needs assessments. ◆ The current refresher program at TNIUS spans 10 days and covers several topics related to functioning of ULBs and includes one full day of field visits apart from the classroom sessions.	◆ Take up training of trainers on subjects related urban mobility, particularly NMT. ◆ Creation of a short (up to 4 hour) refresher training module on NMT planning, design and implementation which can be embedded into the existing 10 day program, under the module titled "Roads". ◆ Help them work out details like frequency of trainings and teaching formats to be used. ◆ Support the relevant faculty to draft a curriculum and training calendar for training for municipal staff. ◆ Handhold delivery of pilots together for CCMC.	◆ Assessments through face to face interactions with TNIUS officials on November 2018 during NMT Network plan methodology workshop and July 2019 workshop on sustainable urban mobility.	◆ Supporting TNIUS and strengthening their existing training programs and curricula and designing new modules on urban mobility. ◆ Transfer of modules to TNIUS along with an orientation of the new refresher module on NMT.

Table 10: City-level Capacity Assessment – Bhubaneswar

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
CRUT	• New organisation literally set up overnight with 12 staff with presently close to 30 in-house staff. This excludes bus pilots (drivers) and captains (conductors). • Initially drew on resource staff from BUKC. • For a lot of the staff, it is "learning on the job", with little time available to spend in learning about their work in detail. Yet thanks to the able leadership, they manage to do both. • Mostly young and motivated staff with mixed background; eager to learn. • Limited experience of technical aspects like planning, scheduling and monitoring bus services. • Little experience with drafting rules, TORs, etc. • Excellent leadership; highly driven and motivated to improve the image of the bus in the city, keeps setting short and long terms goals on increasing the ridership numbers. • However, given their posts are on a rotational basis, they could be transferred soon to other posts. • Leadership recognises value of building capacities especially at the middle and junior level to ensure sustainability of the organisation. • Partners with other city-based institutions upon need (e.g. BSCL is the service provider for ITS related services). • Board of directors makes major decisions • Limited financial resources; Greater focus needed on revenue generation sources and activities.	**Individual level:** • transport planning expertise, ITS, legal procedures, revenue checks, rolling out of smart card and overall technical leadership. **Organisational level:** • org structure and processes, team strength and human resources, access to data, performance measurement systems, regular training interventions, TOR deciphering, drafting rules and regulations. • Route planning approaches lack in-depth impact assessment/feasibility studies and data for evidence-based planning. • essential to have a fortnightly review of operations with relevant stakeholders since this is a new organisation which has promised comfortable and affordable PT. **Cooperation level:** • communication and data sharing with the smart city cell.	• Consultations since start of project. • Direct request from MD or GM of CRUT via phone call and letter. • Needs assessments-training gap assessment survey Jan 2020. • Pre study tour needs assessment survey.	• Need for capacity enhancement at junior and mid-level, leadership of CRUT keeps changing frequently. • Org restructuring and creating JDs and roles for all key personnel in the org structure. • Setting up of Standard Operating Procedures (SoPs), KPIs, and documentation formats. • Formation of new teams like Revenue Assurance Team (RAT), new staff. • Creation of training calendar and curricula. • Technical skills enhancement. • Leadership development of 20 employees. • Better cooperation with partners.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
BDA	◆ BDA has the mandate for land use regulation, and therefore it is a key player to regulate spaces for off and on street parking. ◆ Specific branches exist for specific tasks like UT branch, TP branch but with only 2-3 staff per branch including clerical. ◆ All of the above are urban planners and there are no transport professionals. ◆ BDA is dependent upon BUKC, technical wing (PMU for smart-city projects/ strategies) which has expertise but not much knowledge transfer to BDA from BUKC is seen. ◆ Overall knowledge on sustainable UT concepts across the departments is low, which makes taking up the creation of the LCMP, a critical task. ◆ BDA is responsible for updating and developing the city's master plan, and requested SMART-SUT's support for guiding the CDP development process and ensuring its linkage to the LCMP. ◆ UT branch in BDA developed SD guidelines with help of BUKC. ◆ Focus on NMT improvement became a priority in light of Bhubaneswar hosting the Hockey World Cup in Nov 2018. ◆ Leadership at BDA is in sync with the need for a parking policy and rules to effectively deter unwanted parking by car users. ◆ Structure of accountability and coordination between related departments seems to exist. This is anchored by the fact that the organisational head for BDA, BMC and BSCL is the same person.	**Individual:** ◆ Inadequate technical competencies in-house to plan, design and implement NMT infrastructure. ◆ While technical staff from BUKC help planners in BDA on topics like land use planning and transport integration, street design, etc., the opportunities for knowledge transfer are few and far in between. ◆ Focus on transport integration with land use planning needs to be built up especially with a focus on public transport. ◆ Technical knowledge of existing staff needs to be built in order to understand and validate key plans/proposals prepared by consultant. ◆ Individual capacities also lack in latest concepts like new mobility, smart mobility, complete streets, parking as a demand management tool. **Organisation level:** ◆ Public outreach missing to understand mobility needs of citizens and reflect the same in land use plans and transport plans. ◆ Needs to have media outreach strategies to encourage citizens to use NMT infrastructure, together with BMC, BSCL. ◆ As the modal agency for the LCMP, BDA would need to develop in-house transport expertise. ◆ Vision & mandate for tasks BDA is responsible for is defined but ways or guidance to achieve that are missing. For example, LUTI is the mandate of BDA to achieve desired urban form but it is hardly reflected in CDP. ◆ Lack of understanding on kinds of databases needed by CDP, LCMP, etc. **Cooperation level:** ◆ No control over project identification or implementation/ monitoring for the CDP by other departments/agencies like BMC, Works etc. ◆ Need for a formal coordination mechanism to drive the LCMP process.	◆ Discussions held during MoU signing with GIZ (2017, 2018). ◆ Requests conveyed during one-on-one discussions as well as in meetings like LCMP WG meet. ◆ Department wise capacity needs assessment on various topics like NMT, PT, parking, taken up as part of LCMP institutional strengthening/ capacity development. ◆ Information gathered during workshops, conference sessions, etc.	◆ Individual capacity development for personnel on topics like mobility planning, parking management, CDP development, urban SD guidelines, etc. and their applicability in context of Bhubaneswar. ◆ Better understanding of how to use land use regulation as a tool for parking management and other tenets of a good parking policy. ◆ Improved access to global best practices and knowledge about sustainable UT. ◆ Organisation level guidance on CDP development process. ◆ Develop understanding of urban SD guidelines and their applicability in Bhubaneswar. ◆ Enhancing databases on mobility. ◆ Implementation of public participation approaches for mobility planning. ◆ Creation of a steering structure for LCMP to enable a coordinated and participatory approach towards mobility planning.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
BSCL	• Senior Management (GMs) drawn(deputed) from Administrative Services. • Program delivery is through partner PMUs and there is a clear knowledge of deliverables and processes on part of the BSCL management. • BSCL is actively aided by technical staff of PMC who work on the road design standards. • BSCL itself does not have internal technical staff to internalise knowledge and learnings related to road and pedestrian infrastructure design. • No specific branch for UT projects. All handled by engineering & technology departments. • No qualified transport planners in the organisation; mostly y engineers/ITS experts/PMU. • The PMU engaged by BSCL has technical experts who prepare on-street and off-street parking designs. • BSCL works on the technological aspects of parking management. • Management shares a common understanding of the need for scientific parking policy and planning. • Structure of accountability and coordination between related departments seems to exist. This is anchored by the fact that the organisational head for BDA, BMC and BSCL is the same person.	• Lack of capacities on street design and parking management. • Inadequate management depth especially internal technical level of planners/engineers who can vet and validate NMT design standards. • Parking projects being implemented without base line data and designs and lacked compliance with the basic norms, vision, goals of the city. • A participatory approach to vet smart street designs, citizen feedback on mobility cards use and automated signalling systems could help in better/intuitive design. • Feedback from citizens groups on potential improvements to NMT design and infrastructure needs to be solicited.	• Consultations with various layers of staff. • Findings from reviews of various work being designed & implemented by BSCL. • Key person interviews. • MoM from the first workshop conducted on parking policy and management plan for the city. • Department wise capacity needs assessment on various topics like NMT, PT, parking, taken up as part of LCMP institutional strengthening/ capacity development.	• Individual capacity development for personnel on topics like street design, parking management, traffic management plans, and their applicability in context of Bhubaneswar. • Improved access to global best practices and knowledge about sustainable UT. • Implementation of public participation approaches for mobility planning. • Creation of a steering structure for LCMP to enable a coordinated and participatory approach towards mobility planning.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
BMC	◆ BMC has technical capabilities to construct and maintain on-street and off-street parking facilities. ◆ UT projects are constructed/implemented by engineering dept, O&M by contractors, enforcement by BMC squads and traffic police. ◆ Drafted the Bhubaneswar On-Street Parking Regulations 2015 (Draft). ◆ BMC has technical capabilities to collect parking fee. ◆ Senior management of BMC jointly meet with their counterparts from other departments for road design and bus shelter locations. ◆ While leadership of BMC understands the principles of parking policy and planning in relation with sustainable urban transport, it is uncertain whether that vision has permeated to other lower levels of management within BMC. ◆ There is effective co-ordination between BSCL which has prepared the parking design and BMC which is the executing agency. ◆ Structure of accountability and coordination between related departments seems to exist. This is anchored by the fact that the organisational head for BDA, BMC and BSCL is the same person.	◆ BMC technical staff (planners, road engineers) generally lack understanding on equitable road design principles. ◆ Limited knowledge on complete streets, new mobility concepts, etc. ◆ Very little management depth to internalise and institutionalise knowledge on pedestrian infrastructure design and standards. ◆ Limited technical capabilities to understand and adapt new technologies related to parking infra. ◆ Parking is the domain of revenue dept but lack skilled staff to handle projects on parking. ◆ Recording of data, mapping, documentation etc. is inadequately managed. ◆ Needs to have media outreach strategies to encourage citizens to use NMT infrastructure, together with BDA, BSCL. ◆ Overall vision of CDP/SCM is hardly reflected in projects as no one has that integrating capacity. ◆ Fragmented responsibilities within BMC make it difficult to coordinate functions. ◆ Needs to have more public consultations through its elected wing (ward committees) to compile mobility needs and translate that into NMT requirements.	◆ Department wise capacity needs assessment on various topics like NMT, PT, parking, taken up as part of LCMP institutional strengthening/ capacity development. ◆ In person discussions.	◆ Individual capacity development for personnel on topics like street design, parking management, and their applicability in context of Bhubaneswar. ◆ Improved access to global best practices and knowledge about sustainable UT. ◆ Implementation of public participation approaches for mobility planning. ◆ Creation of a steering structure for LCMP to enable a coordinated and participatory approach towards mobility planning.

3.1.3 Assessment at state level

As part of cooperation, upscaling cities were selected in Kerala and Tamil Nadu in 2019.

Assessment for Kerala

For Kerala, Trivandrum was selected as the upscaling city in discussion with Principal Secretary, Transport Department in July 2019.

Partner Agency	Justification for being considered as key and primary actors
Kerala State Transport Department:	♦ Primary agency responsible for policy formulation, institutional development, financing, monitoring and approval of all projects related to transport sector in Kerala. ♦ Identified as partner for all projects identified for Trivandrum under the technical cooperation.
Kerala State Road Transport Corporation	♦ Agency responsible for planning and implementation of bus service in the city and state.
Kerala Motor Vehicles Department	♦ Nodal agency appointed by the Transport Department for coordination of various activities.
Kochi Metropolitan Transport Authority	♦ Newly formed umbrella agency responsible for development, operation, maintenance, monitoring and supervision of urban transport in Kochi metropolitan area.

Assessment for Tamil Nadu

For Tamil Nadu, Madurai and Salem was selected as upscaling cities apart from primary city Coimbatore in discussion with Principal Secretary, Transport Department during February.

Partner Agency	Justification for being considered as key and primary actors
Transport Department, Tamil Nadu	♦ Transport department is the nodal agency for public transport, land acquisition for transport projects, policy, planning and implementing sustainable mobility initiatives for Public Transport operations. ♦ Identified as partner for all projects identified under the technical cooperation.
Metropolitan Transport Corporation, Chennai	♦ Planning, operating, and maintenance of bus transport services for Chennai city and suburban regions.
Institute of Road Transport, Tamil Nadu	♦ Road transport research, capacity building, material testing, purchase department for STUs.
Commissionerate of Municipal Administration (CMA)	The Commissionerate of Municipal Administration is the nodal department responsible for coordinating and supervising the functions of all Municipalities and Municipal Corporations in the State except the Corporation of Chennai.

3.1.3.1 Organisational level capacity assessment for key actors

	Existing Roles	Intended capacities in order to improve planning and implementation of UT projects.	Sources of assessment	Suggested interventions
Transport Department / partner	♦ Policy formulation related to transport development. ♦ Project financing. ♦ Monitoring ♦ Institutional development. ♦ Project approval. ♦ Development of carbon neutral PT (EV policy).	♦ Knowledge of new trends in transport operations, technological innovations, institutional development for integrated planning and implementation. ♦ Developing an inclusive transport system. ♦ Integrated transport planning. ♦ Gender sensitive transport planning.	♦ Interactions with the Transport Department.	♦ Support for E-mobility and carbon neutral PT activities. ♦ Gender Studies for improving safety of women in PT. ♦ Campaign for use of public transport in COVID.
♦ Motor Vehicles Department	♦ Policy formulation. ♦ Project financing. ♦ Monitoring	♦ Knowledge of existing systems and the technology aspect for monitoring. ♦ Basic aspects of planning for bus operations and design requirements. ♦ Monitoring all the private bus operators and ensuring best services from them. ♦ Ensuring safety of all passengers on private buses.	♦ Interactions with the Department.	

	Existing Roles	Intended capacities in order to improve planning and implementation of UT projects.	Sources of assessment	Suggested interventions
KSRTC	♦ Service planning. ♦ Operations and maintenance. ♦ Project implementation.	♦ Bus planning and service operations. ♦ Financial planning. ♦ Data management for better planning and monitoring. ♦ Route numbering system. ♦ Route rationalisation. ♦ Use of ETMs, GPS based tracking, PIS for better planning.	♦ Interactions with KSRTC.	♦ Support for developing framework for route numbering. ♦ Support for route rationalisation. ♦ Developing online toolkit to simplify process of route rationalisation. ♦ Support for ITMs and finalising tender for ETM procurement.
Kochi Metropolitan Transport Authority (Newly formed agency)	♦ Development, operation, maintenance, monitoring and supervision of urban transport in Kochi metropolitan area. ♦ Coordination with various government agencies for implementation of projects.	♦ Transportation planning. ♦ IT and technology ♦ Finance ♦ Integrated and inclusive planning. ♦ Coordination with various departments for data collection, surveys and identification of projects.	♦ UMTA Act	♦ Support KMTA for organisational development, development of JDs and identification of revenue sources given that it is a newly formed agency.

Tamil Nadu

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
Transport Department, Tamil Nadu	♦ Nodal agency for public transport. ♦ Policy, planning and implementing sustainable mobility initiatives for public transport operations. ♦ Policy formulation related to transport development. ♦ Project Financing. ♦ Land acquisition for transport projects. ♦ Monitoring, institutional development. ♦ Project approval.	♦ Comprehension on information technology for transport operations. ♦ Awareness on current and innovative vehicle Technology. ♦ Advantage and limitations on Bharat Stage Emission Standards VI (BSVI) especially for public transport operations. ♦ Institutional development for E-Buses planning, operations and implementation difficulties. ♦ Knowledge on fuel efficiency and alternate fuel choice for existing fleet operations.	♦ Consultations with principle Secreatry and Managing Director. ♦ Face-to-face meetings with the senior consultant and officials during November/ December 2020.	♦ Capacity enchantement at supervisor level, specifically to junior/ Assistant engineers. ♦ Formation of new strategies to monitor the revenue movements. ♦ Better cooperation with partners.
Metropolitan Transport Corporation, Chennai	♦ Planning, operation, maintenance, monitoring and supervision of urban bus transport for Chennai metropolitan area and suburban regions. ♦ Coordination with various government agencies of Transport Departments for implementation of Projects in the State capital.	♦ Bus route planning and service operations by basic computer applications. ♦ Financial planning for efficient operations. ♦ Awareness on technological innovation for better planning and monitoring with the help of IT systems installing dash boards. ♦ Knowledge on Transportation planning tools and Simulators for route optimisations.	♦ Face-to-face meetings with the Managers and Engineers during November/ December 2020.	♦ Robust support required for the MTC officials to build their capacities on IT applications for planning, operations, monitoring and implementation through digital tools platform.

Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
Institute of Road Transport	♦ Institute for road transport (IRT), a foremost training and research Institute in public transport planning, operations and maintenance endorsed by the Transport department, Tamil Nadu, plans, and conducts training programs for state transport units in Tamil Nadu. ♦ An exclusive team for organising the trainings exists in the institute for the whole year. ♦ Well equipped with training infrastructure. ♦ Transport department supporting for the funds. ♦ Most of the faculties are their own organisation members involved in all areas.	♦ Take up training to trainers on sustainable mobility, particularly on E-Buses. ♦ Creation of training modules on E-Buses battery technology and recycle of regular waste disposal. ♦ Recycling/treatments of effluents discharged from the workshops to reduce the carbon levels mix in the environment which is a cause for the water and air pollutions.	♦ Assessments through face-to-face interactions with IRT director and deputy director during January and December 2020.	♦ Supporting IRT by training their employees and faculties as well on sustainable urban mobility, specifically on all aspects of E-Buses.
Commissionerate of Municipal Administration (CMA)	♦ Nodal department responsible for coordinating and supervising the functions of all Municipalities and Municipal Corporations in the State except the Corporation of Chennai. ♦ Providing technical sanctions for the projects proposed on urban local bodies projects.	♦ Knowledge on urban street designs and cross sections including earmarking of space for NMT, utility ducts, storm water drains etc. ♦ Principles of urban transport mostly on Non-motorised transport (NMT) and Bicycle sharing. ♦ Awareness of all Public transport agencies interacting with the municipal infrastructure. ♦ Sustainable methods for planning, design, implementation and monitoring of urban mobility projects. ♦ Urban Parking management of both on streets and off streets.	♦ Assessments through face-to-face interactions with Assistant Executive engineers during February and December 2020.	♦ Exclusive module on sustainable urban mobility is necessary to build the capacities of the engineers in the department for technical sanctions of projects.

3.1.3.2 Individual competencies assessment

Kerala

S. No.	Individuals (could be department wise)	Current Roles/ Functions	Intended capacities	Sources of assessment	Suggested Interventions
1	EDP cell-KSRTC	♦ Data management-monitoring the bus operations based on various data sets and providing inputs for route planning.	♦ Analysis of data from ETMs for better and efficient planning. ♦ Route rationalisation based on demand supply. ♦ Use of ETMs, vehicle tracking systems, passenger information system for planning of bus system. ♦ Knowledge and know-how of various technologies and data systems in market.	♦ Interactions with the officials.	♦ Support for finalising tender for ETMs. ♦ Support for route rationalisation. ♦ Development of online toolkit to simplify process of route rationalisation. ♦ Support for use of ITMS. ♦ Trainings of officials for use of online toolkit.
2	Operations department-depot level/ zonal level/ central-KSRTC	♦ Route planning and operations. ♦ Monitoring the depot operations. ♦ Manage the daily scheduling and operations. ♦ Maintenance of the buses.	♦ Route numbering. ♦ Use of ETMs, Vehicle tracking systems, passenger information system for planning of bus system, knowledge and know how of various technologies and data systems in market.	♦ Interactions with the officials.	♦ Support for developing framework for route numbering. ♦ Support for use of ITMS. ♦ Support for route rationalisation.

Tamil Nadu

S. No.	Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
1	IRT – Trainers, Engineers and Supervisors	♦ Training on route planning and operations. ♦ Road safety and bus system management for accident preventions. ♦ Refresher training to the employees of STUs. ♦ Orientation courses and simulator training for the drivers. ♦ Basic computer skills.	♦ Training to trainers on e-buses planning and operations. ♦ e-buses Battery technology and disposal methods. ♦ Knoweldge on Charging infrastructure planning and implementation for public transport. ♦ Measures to reduce the carbon emission from Buses. ♦ Awareness and training on effluent treatment from bus depot workshop, particularly due to oil and water to avoid water pollution. ♦ Alternate fuel feasibility for the state (CNG, LPG etc).	♦ Assessments through face to face interactions with IRT director and deputy on January and December 2020.	♦ Supporting IRT by training their trainers and STU officials on sustainable urban mobility, specifically on e-buses and waste disposals.
2	Engineers and Managers from Planning & Operation department- MTC	♦ Route Planning, operating, and maintenance of bus for Chennai city and suburban regions.	♦ More insights on data analysis from electronic ticketing machines (ETM) and knowledge on smart card utilisations. ♦ ETM Data analysis and inference for the structured operations. ♦ Knowledge on emergency rescue management and automatic fare collections. ♦ Fundamental of computer operations to work on all digital platform initiatives. ♦ Training on IT technology in networking from ITIL certifications. ♦ e-buses planning, operations and maintenance. ♦ Training on route rationalisation Planning Tool and simulators. ♦ Data analytics using ETM for improving operational efficiency from the inference.	♦ Face to face meetings with the Managers and Engineers during November/ December 2020.	♦ Robust support required for the MTC officials to build their capacities on IT applications for planning, operations, monitoring and implementation through digital platform.

S. No.	Partner agency	Existing capacities	Intended capacities	Sources of assessment	Suggested interventions
3	Engineers - Commissionerate of Municipal Administration (CMA).	♦ Review of technical proposals of urban mobility infrastructure projects across all the municipalities and municipal corporations of the entire state except Chennai. ♦ Approving the urban mobility infrastructure proposals for technical sanctions.	♦ Fundamentals of sustainable urban transport for planning design, operations and maintenance of mobility infrastructure, including road signages, road markings, median, storm water drains etc. ♦ Cross sectional design of urban streets with provision of utility ducts. ♦ NMT and cycle sharing concepts. ♦ Awareness on public parking and road safety. ♦ Knowledge of public transports services and its interaction with urban infrastructure. ♦ Software skills on urban mobility. ♦ Computer skills related to urban mobility like simulation software. ♦ Road safety, signages, reflectors and markings. ♦ Specifications for urban mobility infrastructure planning and role of MoRTH, National Highways, state highways etc.	♦ Assessments through face-to-face interactions with Assistant Executive engineers during February and December 2020.	♦ Exclusive module on sustainable urban mobility is necessary to build the capacities of the engineers in the department, in order to approve the projects, pertain to NMT.

3.2 Creating the CD Action Plan

The Capacity Development Action Plan is founded in the results of the capacity assessment and presents concrete actions to be taken to build the intended capacities. It aims at providing a list of suggested capacity development measures that outline how the expected outputs, outcomes and the overall objective can be achieved. The plans below consider measures that have worked for the partners and GIZ in the past and are selected based on the principles to develop capacities outlined in chapter 2. The suggested measures are intended to maximise SMART-SUT's support in improving the abilities of the partners to plan and implement urban transport projects.

Apart from the above initiatives, following activities are envisaged under the national level capacity building plan:

1. Capacity building – Executive programme on Transport and Sustainability

The proposed capacity building programme is geared towards mid and senior level professionals. This comprehensive capacity building program focuses on transportation and sustainability. The existing institutions in Indian cities work in silos leading to an uncoordinated, agency-focused approach to transportation. This program therefore is developed for officials from various stakeholder agencies in transport at state/local level. The objective of the program is to familiarise and sensitise participants to different sub-sectors in transport, new emerging areas, their inter-relationships and implications on sustainability.

The focus of the program would be on:

♦ Adoption of an 'user-centric' lens rather than agency specific measures

♦ Developing a 'system' focus in place of a sub-sector/mode focus.

The capacity building programme is proposed to have three parts:

Active Learning	Action Learning	Cross Learning
• 6 half day online workshop • Experiential • Hands-on exercises • Case Discussions	• Action Project in respective cities, associated with current area of work	• Learning from international practices by TUMI
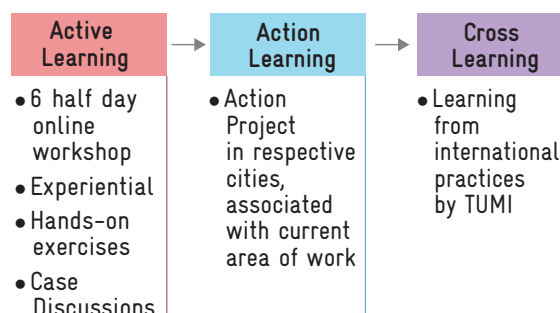
2. Knowledge Creation - Preparing policy and data interventions for post COVID-19 pandemic. In view of the current COVID-19 situation and its impact on the use of public transport, the topics for policy research were identified based on close consultation with MoHUA. The objective of the research work is:

a. To identify the key impacts of COVID-19 on mobility patterns in medium to long term and to measure the intensity of these impacts

b. To suggest strategic policy responses to leverage the disruption caused by COVID-19 in passenger transport towards more sustainable mobility in India

c. To propose implementation mechanism and action plans for the identified policy responses and opportunities

3. Framework for Urban Transport forum and Mobility Start up

Sharing of information, knowledge exchange and coordinated working between different stakeholders is critical for efficient delivery of urban transport system. For this purpose, development of an Urban Transport Forum having participation from the transport agencies, academic and research institutions, industry is important. The study would develop a framework for creating an Urban Transport Forum. A review of the existing platforms will be carried out to understand their functions, issues, and challenges. A nodal agency will

also be identified along with the functioning of the forum. Along with this a framework for mobility start-up platform will also be developed. This platform is envisaged to discuss innovative ideas, provide linkage to the industry and investment options for mobility start-up in India.

3.3 City level action Plan

At the city level, the action plan (table 11-13 below) builds on the proposed interventions from the capacity assessment above and suggests capacity-building measures, beneficiaries, cooperation partners and

expected outcomes. The SMART-SUT implementation partners have predominantly requested the specific intervention areas during the capacity assessment phase. Consequently, partner representatives have been actively engaging in the identification of suitable capacity development measures. The results of these consultations are being jointly agreed upon and updated with the partner city and SMART-SUT. While the structure of the agreement between GIZ and the state and/ or city level partners is the same, the scope of work differs by city depending on priority areas and needs.

Table 11: City level Capacity Development Action Plan – Kochi (Activities and Hypothesis)

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Creation of technical toolkits/ guidebooks for KMC.	Implementation: KMC, C-HED Cooperation KILA/ SMART-SUT	♦ Development of toolkit and guidelines.	Toolkit/guidebook on Roadway design which will serve as guidance for road development has been formally adopted by KMC.
Technical Skills enhancement in KMC: Trainings on how to use the guidebook, general SUT knowledge, case studies, etc.	Implementation: KMC Cooperation: KMRL, CSML, CPPR, SMART-SUT, AFD, and WRI India	♦ Train KMC engineers. ♦ Participation in UMI conference 2019.	At least 2 training cum stakeholder consultations have been conducted to sensitise and apprise stakeholders from KMC, CSML, KMRL and other agencies on UT projects led by KMC in the city, two of which are done jointly with AfD. Political leaders (Mayor and Councillors) and Engineers: are equipped with knowledge of the potential and possibilities of better UT planning and project selection.
Development of internal project management module for KMC through a participatory process.	Implementation: KMC Cooperation: C-HED, CPPR	♦ Create guidelines and project management modules through a participatory process.	KMC has created an internal project management module to better streamlines its role and participation in present and future UT projects in the city. Urban transport projects are included in KMC budget as part of technical cooperation projects.
Setting up Agreements between agencies for last mile connectivity: Drafting JDI on e-auto.	Implementation: KMC, C-HED Cooperation: EJADCS	♦ Drafting terms and conditions.	JDI stating clearly roles and responsibilities of KMC and EJADCS has been signed.

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Support KMC to acquire legal permits for E-auto operations in city limits: Supporting KMC to acquire a GO.	Implementation: KMC Cooperation: GOK & MVD	♦ Drafting letters/ official documents and follow up with GOK for permits.	GO: Legal permit for operations of shared autos have been issued to KMC by GoK
Formation of New UT Cell.	Implementation: KMC Cooperation: C-HED	♦ Support in hiring transport planner/ planners in KMC/C-HED, Draft JDs, monitor work etc.	New UT Cell: Enhanced capacity and processes in KMC to plan and operate UT projects and develop an internal management tool to coordinate and plan all UT projects by KMC.
Support to KMC and GoK in formation of UMTA in Kochi.	Implementation: KMC, GoK Cooperation: CPPR	♦ Develop Org Structure, Draft JDs, Explore Urban Transport Fund for UMTA. ♦ Create steering committee.	GoK has issued guidelines for the proposed structure, roles and job descriptions for a robust UMTA in Kochi, where KMC has a clear mandate.
Individual capacity development EJADCS board members on running a cooperative model, procurement procedures, availing loans, drafting TORs and RfPs, management of operations, etc. Skill development of e-auto drivers on operational, soft skills and gender aspects.	Implementation: EJADCS Cooperation: SMART-SUT, KMRL, KILA, C-HED, KMC	♦ In-person and virtual trainings to all board members on various topics pertaining to e-auto operations. ♦ Technical handholding on a day to day basis through an expert. ♦ Training programs for auto drivers.	♦ 15 EJADCS board members are being trained in-depth on topics like running a cooperative model, procurement procedures, availing loans, drafting TORs and RfPs enabling them to make informed procurement decisions with improved insight into the vehicle technology and its cost implications to purchase e-autos and to better understand RFPs. ♦ Improved technical know-how of the board members on digital communication tools (email, conferencing tools etc.). ♦ Approximately 100 drivers will be trained on operational, soft skills and gender aspects of e-auto operations.
Strengthening EJADCS team and providing hiring support for key personnel to support the technical and managerial tasks involved in e-auto operations.	Implementation: EJADCS Cooperation: SMART-SUT, KMRL, C-HED, KMC	♦ Support writing of job descriptions, roles and responsibilities. ♦ Providing hiring support for a transport planner in EJADCS, who would be mentored and trained by SMART-SUT.	Managerial capacities of the society have been increased by supporting hiring of at least one support staff and training.

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Guidance for procuring e-autos to EJADCS as this will allow the Society to expand its operations beyond the rental model.	Implementation: EJADCS Cooperation: SMART-SUT, KMRL, C-HED, KMC	♦ Development of a business model on e-autos procurement and availing of financial benefits. ♦ Formulating RfP and other documentation templates for vehicle procurement and for availing financial benefits.	Government Order permitting operations of shared autos in KMC limit and Joint Declaration of Intent between KMC and EJADCS initiated.
Development of organisational level manual & promotional video with EJADCS in English and Malayalam on various management and technology related topics for the city.	Implementation: EJADCS, KMC Cooperation: SMART-SUT, KMRL, C-HED	♦ Joint development of guidance manual and promotional in English and Malayalam.	1 guidance manual on roles and responsibilities of the Society board members and SOPs is created. 1 promotional video on the work done by KMC and EJADCS is created.
Facilitate improved cooperation with partners/ stakeholders by setting up of working groups and garnering the necessary legal support.	Implementation: KMC Cooperation: EJADCS, KMRL, CSML, MVD, Traffic police, revenue department	♦ Facilitation of multiple meetings with all members of working group like KMRL, KSEB, MVD etc.	Working Groups for improved communication and coordination between partner agencies and stakeholders is formed. For e.g., setting up of Working Group under existing traffic advisory committee of KMC to co-ordinate e-auto operations is completed.

Table 12: City level Capacity Development Action Plan– Coimbatore (Activities and Hypothesis)

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Individual ♦ Identify and train in-house trainers/mentors from within the CCMC team. ♦ Development of department and staff with working knowledge of NMT issues. ♦ Demonstration projects to build leadership and capacities within CCMC for NMT. **Organisational** ♦ Improve planning, implementation, and monitoring of NMT related projects being taken up by CCMC, thereby enhancing its proactive management capacity in the areas of road safety, NMT planning and design and other related areas. ♦ Creation of a city level NMT plan. ♦ Inclusion of budget head on sustainable UT in the CCMC budget. ♦ Creation of a training calendar and training modules on NMT. ♦ Creation of a platform led by CCMC to discuss and update on NMT projects in the city.	Implementation: CCMC (engineering plus town planning departments). Cooperation: TNIUS	**On the job trainings** ♦ Handholding and technical support to CCMC engineers on a regular basis. ♦ On the job trainings for CCMC officials to plan, design, implement and maintain the NMT infrastructure (includes streets, intersections, furniture around schools) in the city. Trainings will be conducted through demonstration project Training of trainers for select engineers. ♦ Demonstration through tactical urbanism measures. **Peer to peer learning** ♦ Site visits ♦ Study tour for leadership level staff to other countries. ♦ Webinars ♦ Participation in UMI 2018 and 2019 conferences. ♦ Mentoring sessions with subject experts. ♦ Workshops and focus group discussions. ♦ Guidelines and training modules: ♦ Co-creation of an NMT network Plan. ♦ Co-creation of training modules and calendar on various topics relevant for sustainable UT and NMT in particular. ♦ Review of budgeting process. ♦ Drafting of documentation to create position of a nodal officer in CCMC. **Internal processes:** ♦ Review of internal and external communication and coordination processes related to NMT projects. ♦ Preparation of guidance documents.	**Individual** ♦ At least 10 CCMC engineers from the Engineering Department receive in-depth training on various aspects of NMT because of which they start to include NMT components in all the future road projects based on appropriate street conditions. ♦ Engineering Staff in CCMC have better tools to monitor road and NMT projects being undertaken by consultants/ contractors and can leverage better, available guidelines and tools on this subject. ♦ At least 2 CCMC engineers are trained to become trainers and mentors for the CCMC staff. **Organisational** ♦ CCMC appoints one nodal officer for NMT projects through NMT cell in the Corporation (dual benefit of individual and institutional). ♦ CCMC staff participate in and learn from live tactical urbanism events conducted in the city. ♦ CCMC takes steps towards creating separate budget sub head for NMT infrastructure. ♦ CCMC and TNIUS agree on and create a training calendar and modules to ensure long term sustainability of capacity development in NMT. ♦ Internal processes within CCMC are reviewed and sharpened (where necessary) to ensure that regular capacity development of engineers and promotion of NMT projects is ensured. ♦ Guidance documents to help CCMC engineers apply and use the NMT network plan are created. ♦ Support/ Commitment from the state governments is being garnered to ensure long term support and even replication of the proposed measures. ♦ Recommendations for improving communication and coordination mechanisms between CCMC and other agencies working on urban transport in Coimbatore are suggested. ♦ CCMC is emerging as a thought leader and driver of change on NMT and is leading the conversations and dialogues on sustainable mobility in the city and promoting the need for NMT considerations in ongoing and future road projects.

Table 13: City level Capacity Development Action Plan – Bhubaneswar(Activities and Hypothesis)

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
CRUT ◆ Organisation restructuring and creating JDs and roles for all key personnel in the org structure. ◆ Setting up of Standard Operating Procedures (SoPs), KPIs and documentation formats. ◆ Formation of new teams like Revenue Assurance Team (RAT). ◆ Creation of training calendar and curricula. ◆ Technical skills enhancement. ◆ Leadership development of 20 employees. ◆ Human resource development. ◆ Better cooperation with partners.	Important: CRUT departments-Operations, Planning, ITS, accounts. Cooperation: HUDD, BSCL, Chalo, other technology vendors, banks.	◆ Consultations on revisions to organisation chart and processes. ◆ Development of training modules and calendar. ◆ Training programs - ◆ On effective task management, maintenance procedure, depot management, city bus operations. ◆ Workshops on Sustainable PT. ◆ Study tours - BEST, BMTC, Munich. ◆ In-house handholding. ◆ Participation in UT conferences like UMI. ◆ Training of staff to eventually be absorbed in CRUT. ◆ Special coaching for 20 colleagues. ◆ Review of office documents, consultant TORs and reports. ◆ Facilitation of meetings with other partner agencies. ◆ Developments of rules and guidelines (ticketless penalty, route planning). ◆ Development of JDs, roles and responsibilities for various positions. ◆ SOP's for operations. ◆ Development of KPIs to monitor operations. ◆ Capacity development of staff on data analysis, ITS work. ◆ Technical support and recommendations on things like construction of night shelters, fare revision impact and route planning.	◆ 15+ trainings on all relevant topics for bus operations planning to involve both national and international experts have taken place for CRUT employees. ◆ 20 leaders within CRUT have been identified and "prepared". ◆ 3 Guidance manuals for city bus operations on organisational processes, operations, measurement and training has been launched and adopted by CRUT. ◆ Changes to the org structure of CRUT to reflect needs of gross cost operations have been adopted. ◆ New tech staff has been made available to CRUT. ◆ A channel of two-way communication has been established with smart city. ◆ Rules and regulations drafted. ◆ Improved capacities on taking data-driven decisions. ◆ CRUT was able to make decision on developing night shelters by estimating future benefits. ◆ Fare revision-CRUT was able to make concrete decision on revising of fare structure by visualising the future impacts of this decision.

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
BDA ◆ Creation of a steering structure for LCMP to enable a coordinated and participatory approach towards mobility planning. ◆ Implementation of public participation approaches for mobility planning. ◆ Improved understanding amongst personnel on topics like mobility planning, parking management, City Development Plan (CDP), Street Desdign Guidelines, etc. and their applicability in context of Bhubaneswar. ◆ Improved access to global best practices and knowledge about sustainable UT. ◆ Guidance created on CDP development process. ◆ Enhancing partner's databases on mobility.	Implementation: BDA Cooperation: CRUT, BMC, BSCL, Traffic Police, HUDD, Works Department	◆ Creation of steering mechanisms. ◆ Personal interviews/meetings with UT officials. ◆ Review of documents on UT like parking. ◆ Regulations, SD guidelines, TORs. ◆ Exposure to international level transport platform, such as officials taken to UMI, 2019. ◆ Trainings on street design based on SD guidelines. ◆ Trainings on parking policy and various topics under it. ◆ Training on parking management (toolbox and area approach). ◆ Training on traffic management plans. ◆ Constant feedback loops at various stages of the project. ◆ Workshops ◆ Data collection through surveys.	◆ A technical working group and multi stakeholder co-ordination committee has been formally established under the Chairmanship of Vice Chairman, BDA, for the steering of the LCMP development process. ◆ 4 WG and 2 MPCC meetings took place to facilitate cooperation between institutions active in the urban transport sector in the city and get consensus on the different stages of the LCMP development process. ◆ At least 3 trainings have taken place to sensitise professional staff in BDA on topics including parking policy and management plan, SD guidelines, master plan development and implementation of the LCMP. ◆ BDA initiates participatory process for planning a public campaign to sensitise citizens of the city on sustainable urban mobility and take their feedback on mobility experiences and expectations. ◆ BDA strengthens its existing approach towards CDP development by adopting a holistic and forward-looking TOR template to identify the consultants who will work on the CDP process for the city. ◆ BDA improves further its existing SD guidelines to reflect more inclusive and local elements related to road users and space. ◆ At least 3 workshops cum trainings take place for key agencies like BDA, BSCL & BMC that improve capacities in these departments to. ◆ Develop a parking policy for the city. ◆ Provide improved parking management facilities and tools to manage parking demand, thereby enabling a shift towards sustainable UT modes. ◆ A technical working group has been formally established under the Chairmanship the head of BSCL and BMC for the steering of Bhubaneswar's parking policy and management plan. ◆ BDA's (also BSCL, BMC's) database on mobility is strengthened through the research-based approaches adopted during the course of the project.

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
BSCL and BMC ♦ Creation of a steering structure for parking to enable smooth flow of information and data between these agencies. ♦ Improved understanding amongst personnel from both departments on various aspects of parking as a travel demand management tool for the city. ♦ Enhanced skills amongst staff in both agencies on SD guidelines for complete streets and their applicability to Bhubaneswar.	Implementation BSCL, BMC Cooperation: Traffic police, BDA, CRUT, HUDD	♦ Creation of steering mechanisms. ♦ Personal interviews/meetings with UT officials. ♦ Review of documents on UT like regulations, SD guidelines, TORs. ♦ Exposure to international level transport platform, such as officials taken to UMI, 2019. ♦ Trainings on SD guidelines implementation. ♦ Trainings on parking policy and various topics under it. ♦ Training on parking management plan. ♦ Training on traffic management plans. ♦ Constant feedback loops at various stages of the project. ♦ Workshops	♦ A technical working group has been formally established under the Chairmanship the head of BSCL and BMC for the steering of Bhubaneswar's parking policy and management plan. ♦ BDA, BSCL improves further their existing SD guidelines to reflect more inclusive and local elements related to road users and space. ♦ Individual capacities of senior level staff at BMC and BSCL on topics like street design, traffic management and parking management are improved.

3.3.1 State level action plan (GIZ)

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Developing online toolkit and framework for route rationalisation and route numbering.	Implementation: KSRTC	♦ Development of online toolkit. ♦ Training for officials for use of toolkit. ♦ Framework for route numbering and route rationalisation.	♦ Training and stakeholder consultation to appraise the stakeholders towards the use of the online toolkit, enable to use the online toolkit for any future route rationalisation. ♦ Set a framework for route numbering for KSRTC, which can be upscaled to the entire state. ♦ Support for ITMS, ETM procurement.
Developing recommendations for the State Government towards improving safety of women in public transport.	Implementation: Transport Department, KSRTC, KMVD, KMTA	♦ Development of action plan. ♦ Development of data collection framework. ♦ Peer to peer learning.	Stakeholder consultation to apprise the of the issues faced by women, and the possible recommendations.
Campaign for use of public transport in COVID.	Implementation: Transport Department, Motor vehicles Department, Cochin Smart City Limited	♦ Online campaign. ♦ On-ground implementation through tactical urbanism in Kochi.	♦ Sensitise the public on precautions to be taken while using public transport considering the pandemic through online campaign and posters put on various locations in Kochi. ♦ Sensitise the public of the precautions undertaken by the government agencies for their safety through online campaign and posters put on various locations in Kochi. ♦ Promote use of non-motorised transport through posters and tactical urbanism measures.
Operationalisation of Kochi Metropolitan Transport Authority (KMTA)	Implementation: Kochi Metropolitan Authority, Transport Department	♦ Support for institutional strengthening. ♦ Support for identification of revenue sources for urban transport fund.	Development of an organisation with adequate skill sets to undertake the envisaged responsibilities, and enable coordinated development in the transportation sector of the metropolitan area.

Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
Developing Urban Transport Assessment Toolkit.	Implementation: Transport Department Tamil Nadu	♦ Development of Excel based urban transport toolkit. ♦ Training for officials to use the toolkit.	♦ This tool will support on the following ▪ Travel demand implications. ▪ Financial implications (Capex and Opex): ▪ Urban transport performance indicators.
Developing a toolkit for Route rationalisation.	Implementation: TNSTC Coimbatore	♦ Development of route rationalisation toolkit. ♦ Training for officials to use the toolkit.	♦ This tool will allow the TNSTC officials to rationalise the bus routes periodically for efficient city bus operation.
Developing a toolkit for Electric bus route selection.	Implementation: TNSTC Coimbatore	♦ Developing e-bus route selection tool. ♦ Training for officials to use the toolkit.	♦ This tool will guide TNSTC officials to identify the best potential routes for operation of electric buses.

3.3.2 Timeline Action Plan

The SMART-SUT project, as outlined above, follows an implicit and explicit approach towards building capacities. Therefore, suggested interventions and their corresponding CD measures have been addressed from project start and will continue to be implemented until project end. The timeline for the implementation of the action plan thus reflects the ongoing support and planned support by detailing out the concrete planned, ongoing and completed activities.

The timeline below has been discussed with the SMART-SUT partners and takes into consideration the internal and external factors that might cause a delay in implementing the measures (e.g. elections, sequence of activities, festivals/holidays, and the unprecedented global health crisis of 2020).

GIZ, suggest adding the state and national level activity in the table below (excel will be send separately)

Legend: CD Level: Individual (I), Organisational (O), Cooperation (C), Status: planned (pl), ongoing (on), completed (co)

Table 14: Timeline Capacity Development (as on09/2020)[8]

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
KOCHI/ KERALA													
OA1 OB3	Technical assistance (TA) to KMC for creating FKI last mile connectivity plan document			31.12.20	█	█	█	█	█	█			
	Individual capacity building of councillors to apply and use the document	I	pl	31.12.20					█	█			
	Development of guidance documents like street design manual for KMC engineers and integrated transit and last mile connectivity maps for users	O	on	30.09.20		█	█	█	█				
OA1	TA to auto trade unions & KMC in Kochi for initiating shared e-auto pilot operations			30.06.21	█	█	█	█	█	█	█	█	
	Individual capacity building + technical handholding for trade union members on technology + operations	I	on	31.12.20	█	█	█	█	█	█			
OA1	TA to KMC for SA Road re-development		on	30.06.20				█					
	2 sensitisation workshops for Mayor, Councillors and engineers	I	co	30.06.20		█		█					
OB1	Organisational strengthening for Auto Society (EJADCS) for last mile connectivity			31.12.20				█	█	█			
	Government Order permitting operations of shared autos in KMC limit and Joint Declaration of Intent between KMC and EJACDS initiated	C	co	31.12.19		█							

[8] The table reflects the status quo of implementation and is included as an example on how capacity development is interwoven in all project activities. The intent of this table is to present a tracking tool for teams to monitor the progress of the CD activities against output indicators, and not present an updated status of each of the activities.

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
	Set-up of Working Group under existing traffic advisory committee of KMC to co-ordinate e-auto operations	C	co	31.12.19		▓							
	Individual capacity building of board members on running a cooperative model, procurement procedures, availing loans, drafting TORs and RfPs	I	co	30.06.20				▓					
	Training of e-auto drivers on operational, soft skills and gender aspects	I	pl	31.12.20					▓	▓			
	Increasing managerial capacities of Society by providing hiring support	O	on	30.09.20			▓	▓	▓				
	Development of organisational level manual & video in English and Malayalam on the above	O	on	31.12.20			▓	▓	▓	▓			
OB1	Organisational strengthening of KMC for improved planning, management and review of UT projects			30.06.21			▓	▓	▓	▓	▓	▓	
	Capacity development to seek financing for UT for ongoing and future projects	I	pl	31.03.21				▓	▓	▓	▓		
	Development of an internal management tool/ module to guide KMC's involvement on technical co-operation projects	O	pl	30.06.21					▓	▓	▓	▓	
	Strategies for in-house HRD	O	on	31.12.20					▓	▓			

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
OB1	UMTA in Kerala		on	31.12.20		▦	▦	▦	▦	▦			
	Support legal and operational framework formulation	C	on	31.12.20					▦	▦			
OB2	Monitoring and evaluation of KMC, EJADCS		pl	30.06.21						▦	▦	▦	
State level activities													
OA2	Route Rationalisation and City Bus Improvement for city of Trivandrum												
	Kick-off workshop with partners (on-boarding of consultants, agreement on approach, scoping, etc)			06.01.2020		▦							
	Activities for preparation of service and operational plan and its submission Route rationalisation process			27.12.2020				▦	▦	▦			
	Submission of final report and toolkit		on	25.02.2021						▦	▦		
	KSRTC implements selected recommendations proposed in the plan			15.04.20201								▦	
OC2	State-wide workshop for presenting findings from gender studies		pl	20.04.2021								▦	
OC3	Campaign for use of public transport with COVID-19 situation												
	One-month online campaign		co	30.06.2020				▦					
	Offline campaign- Posters on precautions to be taken and promoting NMT for Kochi city			30.08.2020						▦			
	Promote NMT as precautionary measure for COVID through Cycles4Change Challenge in Kochi city			15.02.2021							▦		
OC3	Gender Studies - identification of issues and recommendations												
	Kick-off workshop with partners		co	06.01.2020			▦						
	User perception survey		co	25.12.2020						▦			

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
	Preparation of report for gender studies and submission to the partners			20.04.2021					▓	▓	▓		
OD1	Policy oriented research in Kerala		pl	30.06.2021							▓	▓	
OD2	Replication mechanism		pl	30.06.2021							▓	▓	
OD3	Online toolkit for route rationalisation		pl	30.06.2021							▓	▓	
BHUBANESWAR/ ODISHA													
OB3	Technical assistance (TA) to BDA on LCMP development		on	31.03.21		▓	▓	▓	▓	▓	▓		
	Working Group and Co-ordination committee creation	C	co	31.12.18	▓								
	Multi stakeholder meetings to steer LCMP development	C	on	31.12.20						▓			
	Individual capacity building under various subject areas for LCMP	I	pl	31.03.21						▓			
	Public campaign for the LCMP	C	co	31.12.19				▓	▓	▓			
	Submission of mobility database to BDA for future projects and monitoring of the LCMP	O	pl	30.4.21								▓	
OA1	TA for BDA on CDP development process		co	31.03.20		▓	▓						
	Expert lectures and workshop on creating Master Plans	I	co	31.12.19		▓							
	Template and guidance for creation of future TORs by BDA	O	co	31.03.20		▓							
OA1	TA to BDA, BSCL, BMC on street design		on	30.09.20			▓	▓	▓				

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
	Individual capacity building on application of street design guidelines	I	co	30.09.20					█				
OA1	TA to BSCL/BMC on parking policy design+management plan		on	31.12.20		█	█	█	█	█			
	Workshop-cum-training on case studies and lessons on parking for all key stakeholder agency representatives in Bhubaneswar	I	co	31.03.20			█						
	Series of technical trainings on policy+PAMP implementation	I	pl	31.12.20					█	█			
	Creation of working group on parking in Bhubaneswar	C	co	30.09.20		█	█	█	█				
OB1	Revision of formal street design guidelines by BSCL, BMC		on	31.12.20		█	█	█	█	█			
OB1	Organisational strengthening of CRUT		on	30.06.21	█	█	█	█	█	█	█	█	
	Org restructuring and setting up teams, SOPs, JDs,	O	co	31.12.19	█								
	Development of training curricula and calendar	O	co	31.12.19		█							
	Handholding on various topics related to bus operations	I	on	31.12.20		█	█	█	█	█	█	█	
	Development of orgnisational level guidance manual	O	co	31.12.19		█							
	Leadership development of 20 CRUT employees	I	on	31.12.20			█	█	█	█			

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
	Human resource development	O	on	31.12.20		█	█	█	█	█			
	Individual capacity building through trainings, study tours and in-house mentoring sessions	I	co	30.09.20	█	█	█						
OB2	Monitoring and evaluation CRUT, BDA, BSCL		on	30.06.21			█	█	█	█	█	█	█
COIMBATORE/ TAMIL NADU													
OB3	Technical assistance (TA) to CCMC for development of an NMT Network Plan for Coimbatore			31.03.20	█	█	█	█	█				
	Development of guidance documents to implement the plan	O	co	31.03.20	█	█	█						
	Individual capacity building of engineers on to apply and use the plan document	I	pl	31.03.20			█						
OA1	TA to CCMC for improved street design/NMT at various locations			30.06.21		█		█	█	█	█	█	
	3 sensitisation workshops/ consultations for CCMC engineers	I	co	31.03.20		█	█						
	Guidance document on tactical urbanism for CCMC engineers and other supporting departments	I	on	31.10.20				█	█	█			
	Leadership and org capacity development through demonstration projects and tactical urbanism	O	co	30.06.21				█	█	█	█	█	
OB1	Organisational strengthening of CCMC		on	30.06.21		█	█	█	█	█	█	█	
	Capacity needs assessment for NMT related works		on	31.03.20				█	█	█			

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
	Individual capacity building on NMT planning, project, budgeting, etc.	I	pl	30.06.21									
OB1	TNSTC support		pl	30.06.21									
	Individual capacity building	I	pl	30.06.21									
	PT quality assessment tool for TNSTC	O	pl	30.06.21									
OB2	Monitoring and evaluation CBE		pl	30.06.21									
State level activities													
OA2	Route rationalisation study for TNSTC		pl	30.06.21									
	Kick-off workshop with TNSTC CBE (on-boarding of consultants, agreement on approach, scoping, etc)	O	co	02.02.20									
	Final draft plan and toolkit presented/shared	O	pl	30.06.21									
OC2	State-wide workshops		pl	30.06.21									
	State-wide workshop on NMT in ten selected Smart Cities	O	on	30.06.21									
	State-wide workshop on NMT network plans and complete streets	O	pl	30.06.21									
	State-wide workshop on bus route rationalisation and e-buses planning	O	pl	30.06.21									
OC3	Sustainable and gender friendly urban transport campaign		pl	30.06.21									
	Results documentation and submission to partners	O	pl	30.06.21									

Ind.	Activities	CD level	Status	anticipated deadline	2018	2019	Q1 20	Q2 20	Q3 20	Q4 20	Q1 21	Q2 21	Q3 21
OD1	Policy oriented research in Tamil Nadu		pl	30.06.21									
	Policy recommendations presented/submitted to partners	O	pl	30.06.21									
OD2	State of Transport study		pl	30.06.21									
	Policy recommendations presented/submitted to partners	O	pl	30.06.21									
	Proposal for replication mechanism presented to partners	O	pl	30.06.21									
OD3	Data management		pl	30.06.21									
	Guidelines/ technical advisories submitted to partners	O	pl	30.06.21									

Note: Deep purple colour in the timelines indicate extended/delayed activities due to Covid-19.

3.4 Implementing the CD Action Plan

The implementation of the Capacity Development Strategy that is operationalised in the Capacity Development Action Plan aims at improving the ability of key actors in the pilot cities to plan and implement urban transport projects. It hereby draws on the impact matrix and implementation principles outlined in chapter 2 and addresses the proposed and agree upon intervention areas through the identified CD measures outlined in chapter 3.

3.4.1 Role of key institutions

SMART-SUT's partners on city, state and national level play a pivotal role in the implementation of the capacity development strategy. They are not only the beneficiaries of the SMART-SUT support but also actively contribute to the success of the capacity development measures. Their role and the driving forces for the implementation are outlined in figure 8 below:

from other cities are adapted to the partner institution in question and updated with the recent good practices and scientific knowledge. This is for example the case in Bhubaneswar for the support in strengthening the capacities of CRUT (example for operationalisation below). Equally highly valued in the implementation are the human resources and financial contributions that are being made available by SMART-SUT partners. These vary from partner to partner between hosting the training, providing trainers to covering all costs of the participating individuals. Generally, and from previous GIZ experiences, a financial and human resource contribution by partners increases the partner's ownership in the process.

3.4.2 Ownership

The outlined CD measures reflect the needs and priorities of each institution, and its success depends on the ownership by both the institutions and each individual. It is pivotal that the CD process is driven by the partner

Partner Priorities	Stakeholders	Partner Contributions	Resources
• Regular adjustment of CD measures to achieve expected outcomes • Acknowledgement of importance to continuously develop capacities	• Partner agency • SMART-SUT team • Local institutions • Training institutions	• (Human) Resources • Budget allocations for urban transport projects • Continuation of CD beyond SMART-SUT • Upscaling of trialled and successful approaches across the state	• Venue provision • Training institution/ Trainer team (where available)

Figure 8: Role of Partners in Capacity Development Strategy implementation

The highly dynamic and ever-changing urban transport sector in India requires a partner rooted capacity development approach to develop the anticipated sustainability of the capacity development measures beyond project end. The active contribution of partners is the main driving force that sustains this longevity. For that reason, the implementation of the SMART-SUT capacity development efforts is anchored in the existing training modulesand institution such as with TNIUS in Tamil Nadu. In cases that a training institution and/or trainer are absent, training modules

institution and the SMART-SUT project team remains in an advisory role. This includes that CD topics and individuals are chosen by the partner institution that also follows-up on its implementation and continuation beyond project end. The SMART-SUT team assists with these tasks and suggests procedural steps, content and trainers where needed.

In cases where the ownership is lacking, partners are continuously encouraged and roped in to discuss the agreed CD measures. This includes but is not limited to regularly

raising the CD measures with the respective nodal officer/decision-maker, outline the benefits of a CD measure using an ongoing activity by the institution as an example to win their interest and thus ownership, and encouraging partner agencies to create a role for a training manager, a training calendar and curriculum which they can refer to and follow. Furthermore, upon completion of trainings, partners are encouraged to share the proceedings of the trainings and noteworthy training statistics with higher level departments and Ministries to report the good work being undertaken. If the partner has a good communications team, that becomes an added advantage to disseminate such information. This not only instils a sense of pride in the agency for taking the lead in something as relevant as capacity development, it also sets benchmarks for other agencies in the city and other cities to follow.

Since the CDS presents and responds to the partners' needs, it is expected that, convinced of the benefits, partner institutions continue the CD efforts beyond the project end.

3.4.3 Operationalisation of Action Plan – the example of CD of CRUT in Bhubaneswar

In Bhubaneswar, CRUT is responsible among others for the operation of bus services. It is a steadily growing institution with the ambition to be the nodal agency for public transport operations in the city. As part of fulfilling this ambition, CRUT recognised the need for CD and requested SMART-SUT's support in November 2018. One of the measures taken is the CD of individuals to improve bus operations. One of the CD support measures that SMART-SUT helped CRUT with was the creation of a training curriculum and guidance document for all levels of CRUT employees. This was jointly published and launched by SMART-SUT and CRUT at UMI 2019, as part 3 of the guidebook on city bus operations titled "Bhubaneswar on the move: Tools and Guidelines for city bus operations." As a follow-up of this measure, when operations in public transport got severely affected by the COVID-19 pandemic in Odisha, CRUT and
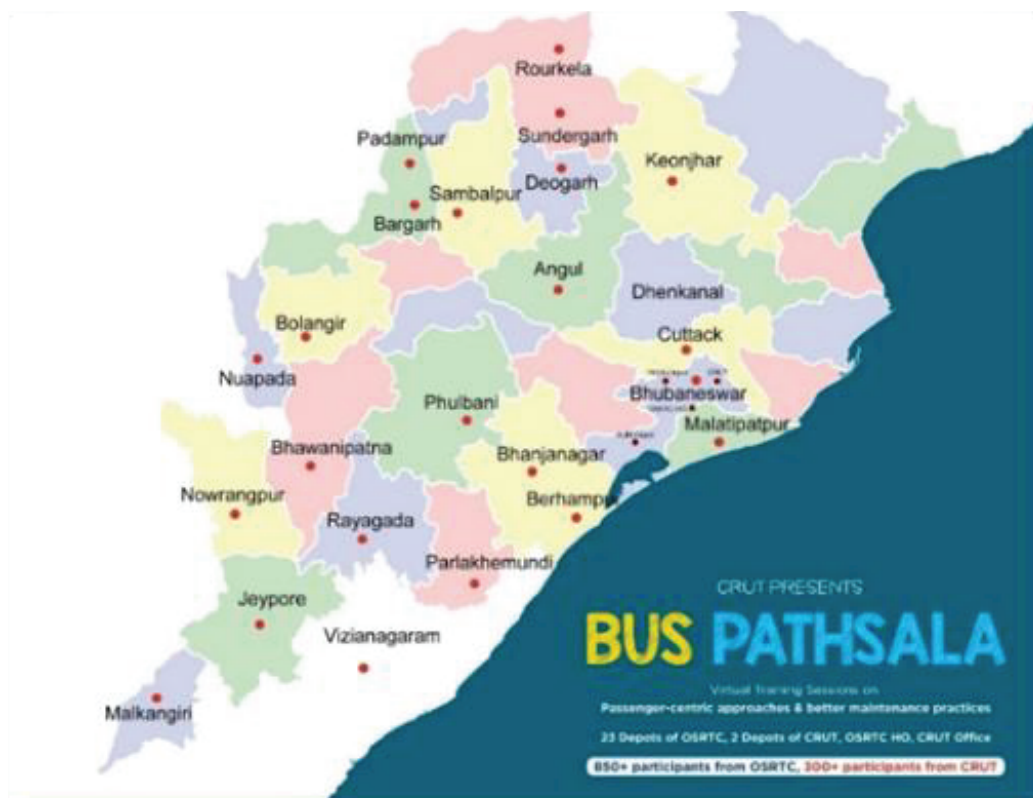

Figure 9: Bus Pathasala

Odisha State Road Transport Corporation (OSRTC) enquired on the guidance to implement a virtual training for bus drivers/conductors (in Bhubaneswar called captains/guides) and mechanical staff, on the topics identified in the training curriculum for bus crew i.e. improving the customer experience on board, bus maintenance, fuel-efficient and safe driving practices, and gender-responsive approaches to public transport. The request from CRUT to the SMART-SUT team was based on an internal needs assessment that pre-defined the context (individual CD) and the content (described above). For the operationalisation of the CD measure, the following steps were taken:

1. Based on CRUT's priorities, a **framework for the training** (definition of training goal, finalisation of content, time, duration, module topics, selection of potential trainers, identification of participants and group sizes, venue) was discussed – CRUT also reached out to Tata Motors who provided trainings on technology related aspects. CRUT, SMART-SUT and Tata Motors together created the detailed module content and trainers were finalised based on existing and adapted modules from trainers that mostly speak the local language (Odia). The trainers were partially proposed by CRUT.

2. Upon approval from CRUT on the framework, **invitations** were sent out to participants and the **logistics** were finalised – The workshop took place under the COVID-19-induced physical distancing rules and was therefore held on an online platform (MS Teams)

3. CRUT's **communications** team branded the workshop as Bus Pathsala (literally translated which means "a school for bus") (see Figure9) and shared key messages and screenshots from the trainings via CRUT's social media handles.

4. **Content of the modules** was adapted to CRUT's needs by the trainers and the quality check completed by the SMART-SUT team subsequently. The CRUT Communications team expressed the need to convert the key learnings from the various trainings into modules/messages readily available/accessible to the crew in their daily workplaces (for example the 5 things to keep in mind for eco driving, for drivers, etc.) and have plans to document these and create reader friendly materials from the content of the trainings.

5. **Costs** for trainers was covered by SMART-SUT, while CRUT provided the venues for participants to tune into the online event

6. Each **module structure** was divided into two parts: a presentation by the trainer followed by a question-and-answer slot that enabled the participants not only to follow up on more complex explanations but also get answers to day-to-day challenges related to the module topic

7. **CRUT was involved** in the planning and conducting of the trainings. This developed capacity, they can use to prepare and develop future such trainings.

Ultimately, more than 1100 bus crew, including those from the remotest corners of Odisha, participated in the virtual trainings, and shared very positive feedback, including request for more such trainings in the subsequent days, which resulted in Bus Pathsala version 2 and 3. CRUT reported the summary and outcomes of these trainings to MoHUA, the Association of State Road Transport Undertakings (ASRTU), the International Association of Public Transport (UITP), as a good practice and inspiration for other cities.

3.4.4 Interaction of CD levels and complementarity of action plan

One of the characteristics of a robust CD strategy is that it should not only generate inputs at the different levels of CD, but also link these up to form coherent and holistic effects. Interventions at one level are invariably linked to and dependent on interventions at other levels. Hence the interaction should be factored in and not ignored. The table 15

Table 15: Interaction of activities between different CD levels –Example of the E-auto project with KMC and EJADCS, Kochi

Level	Individuals	Organisations	Society	
Sub-level	**Competence development**	**Organisational development**	**Cooperation mechanisms**	**Enabling frameworks**
Activities	Developing individual level capacities of the autos society(EJADCS) board members on running a cooperative model, procurement procedures, availing loans, drafting TORs and RfPs, helps build confidence for EJADCS to sustain their business model and grow and prosper. Training of e-auto drivers on operational, soft skills and gender aspects, enables them to successfully execute their responsibilities., thereby increasing the visibility and business prospects of the auto society as an organisation. Without a skilled workforce, the organisation cannot achieve the vision it has set out to achieve.	In the course of becoming an efficient organisation, it is essential for EJADCS to enhance its managerial capacities that tie together the various responsibilities such as hiring and training of staff, completing administrative paperwork, coordinating between agencies and offices while overseeing the operations. The successful execution is captured in an organisational level guidance manual and a promotional video in English and Malayalam that is to be shared with other organisation for replication. If taken up by others, this creates cooperation mechanisms between societies and can ultimately influence the enabling framework. For the further growth of the organisation, clarity of roles is needed for individuals to perform their tasks well and for actors in the ecosystem to cooperate better. Guidebooks, good practices and exchanging with similar organisations helps to convince authorities and citizens on the value of such a service.	A Working Group was set up under the existing traffic advisory committee of KMC to co-ordinate e-auto operations. It facilitates coordination but also discussions surrounding the future of EJADCS as an organisation and might reveal CD needs at the individual level. Using the formal platform and the regular exchange with KMC to discuss and coordinate e.g. the introduction of a new e-auto service, charging station locations, EJADCS can move forward and achieve its vision.	It was essential for the shared auto operations to draft and obtain a Government Order permitting operations of shared autos in KMC limit as well as a Joint Declaration of Intent between KMC and EJADCS. It not only permitted operations but also formalised the responsibilities which directly affect the organisation and its individuals.

below presents an example of how focusing on one level of CD automatically generates effects/opportunities at the other levels.

3.5 Monitoring and Evaluation of the CD strategy

The monitoring and evaluation framework of SMART-SUT's engagements measures results by assigning specific indicators to the outputs and outcomes presented in the impact matrix (cf. chapter 2.3). The continuous monitoring of capacity development activities allows to highlight needs for adjustment of activities, flag deviations from the implementation timeline and learn from good practices. For example, in light of the physical distancing rules caused by COVID-19, in-person interactions are limited to impossible. Initially waiting for the in-person meetings to resume, it became clear that all CD measures require an adjustment in the approach in order to carry out the necessary measures and meet the objective that "*the ability of key actors in the pilot cities to plan and implement urban transport projects is improved*". As a consequence, CD sessions were moved online, and group sizes were significantly reduced.

The M&E framework used assess not only the concrete activities but also feeds specifically into SMART-SUT's overall Output Indicator OB2 (70% of the surveyed technical experts and managers, who are defined as key and primary actors in the stakeholder maps of the three cities and who participate in the planning and implementation process for sustainable urban transport projects, confirm with reference to an example that the institutional capacity has improved).The SMART-SUT M&E framework traces the capacity change process within the partner institutions through the following aspects:

♦ Type of capacity need or change objective (depending on which aspect of capacity is being addressed)

♦ Capacity development approach (explicit or implicit) and measure (training, workshop, conference)

♦ Perceived learnings and changes used to track indicator progress

♦ Indicator progress and corresponding means of verification/data source

The stakeholders selected for the evaluation are based on the following criteria:

♦ Recipient of SMART-SUT support

♦ Demographic distribution following existent distributions in each city/institution (gender, position, institution, etc.)

♦ Benefitted from on-the-job support and/or 1 explicit capacity development training

The OB2 evaluation process begins somewhere mid-way into the project cycle as soon as activities start to see "maturity" or "bear fruit". Typical OB2 assessment approach will include (1) identification of the key and primary actors and associated interventions (2) developing a survey format and (3) surveying selected actors at intermediate and final stages in the project by administering a survey questionnaire for a selected set of audiences (criteria discussed above), with the following questions:

1. Background information and experience of the interviewee

2. Role in the partner organisation

3. Seek feedback on SMART-SUT related activities they have been a part of till date. These could be categorised under various categories of institutional capacity strengthening like mandate, structure, process, competency, instruments, coordination etc.)

4. Request for sharing of learnings from SMART-SUT supported activities under each of the above categories (wherever applicable)

5. Explore the present and future applicability of these activities

6. Glean changes observed because of the above-mentioned SMART-SUT supported interventions

7. Ask for ratings on quality, usefulness, and future sustainability of CD measures

8. Any other feedback for SMART-SUT

This process will be taken up the near completion of the CD measures in each city. The results of ongoing monitoring of activities

Table 16: M&E Overview – Kochi/Kerala as on Sep 2020[9]

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones (completed, ongoing, planned)	Source of verification
Partners have increased technical, managerial and administrative capacities.	◆ Numerous training-cum-stakeholder consultations have been conducted to sensitise and apprise stakeholders from KMC, CSML, KMRL and other agencies on UT projects led by KMC in the city, two of which are done jointly with AFD. ◆ Political leaders (Mayor and Councillors) and Engineers are equipped with knowledge of the potential and possibilities of better UT planning and project selection.	◆ Technical Skills enhancement for KMC engineers and councillors on general SUT knowledge, case studies, etc. ◆ Train KMC engineers. ◆ Stakeholder consultations on live projects like SA rod redesign and redevelopment, shared e-autos as last mile connectivity solutions, planning for last mile connectivity in FKI. ◆ Participation in UMI conference 2019. ◆ Trainings and site visits for Mayor, councillors (planned).	◆ 2 trainings carried out in 2019. ◆ Activity agreed by KMC and initiated jointly with AFD. ◆ Request from mayor to prepare the street design guidebook and to train KMC engineers on the same. ◆ Activity initiated. ◆ 3 KMC councillors attended UMI2019. ◆ Preparation of street design guidebook. ◆ Organisation level capacity development assessment of KMC. ◆ Stakeholder consultation carried out to finalise the guidebook. ◆ Submission and KMC approval on guidebook. ◆ Proposal(syllabus) for trainings submitted to partner. ◆ Trainings for KMC engineers on how to use the street design guidebook. ◆ Impact evaluation.	Letter of invitation from mayor Report of 2 trainings (ongoing) Approved MoM.
	◆ 15 EJADCS board members trained in-depth on topics like running a cooperative model, procurement procedures, availing loans, drafting TORs and RFPs. ◆ Improved technical know-how of the board members on digital communication tools (email, conferencing tools etc.). ◆ Approximately100 of auto drivers will be trained on operational, soft skills and gender aspects of e-auto operations.	◆ In-person and virtual trainings to all board members on various topics pertaining to e-auto operations. ◆ Technical handholding on a day-to-day basis through an expert. ◆ Training programs for auto drivers.	◆ Individual capacity development activity requested and initiated with partner. ◆ Training syllabus (for board members) developed and submitted. ◆ Preparation of online trainings and testing of virtual communication platform with partner. ◆ 3 board members attended UMI 2019. ◆ Senior expert hired to handhold and guide the Society. ◆ 1 training completed and others planned out in discussion with EJADCS. ◆ Training syllabus for auto drivers developed with EJADCS. ◆ Trainings for board members and drivers are documented and institutionalised. ◆ Impact evaluated.	Letter from EJADCS (17.01.2020) MoM (30th January 12th February 5th March 8th May 2020) Email to EJADCS (25th May 2020) Training documentation

[9]The status of completion of milestones reflects an intermediate stage during project implementation and is an example for the monitoring approach taken across the project life cycle.

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones (completed, ongoing, planned)	Source of verification
Improved organisational structure and performance	• New UT Cell is established in KMC. • Toolkit/guidebook on roadway design which will serve as guidance for road development has been formally adopted by KMC. • KMC acquires Government Order (GO) allowing operations of shared e-autos in Kochi. • KMC has created an internal project management module to better streamlines its role and participation in present and future UT projects in the city. • Urban transport projects are included in KMC budget as part of technical cooperation projects.	• Support in hiring transport planner/planners in KMC/C-HED, Draft JDs, monitor work etc. • Co-creation of the guidelines with best case examples and stakeholder discussions • Drafting letters/official documents and follow up with GOK for permits allowing operations of e-autos in KMC limit. • Develop an internal management tool/module to guide KMC's involvement on technical co-operation projects including exploration on fund sources. • Support in drafting text for the budget submission documents.	◆ Project (Institutional strengthening of KMC) approved by KMC and added in KMC Budget and verbally approved by mayor. ◆ Mayor initiated the request for GO and shared the request to GoK. ◆ JD for transport planner prepared. ◆ Street design guidebook is prepared. ◆ Needs assessment of KMC. ◆ Contract signed with C-HED. ◆ Transport planner hired. ◆ Internal implementation module for technical cooperation is submitted. ◆ Street design guidebook submitted to KMC. ◆ GO issued allowing operations of shared e-autos in Kochi. ◆ Impact evaluated.	Issued joint AFD MoM MoM GoK (transport commissioner) has initiated the file.
	• Guidance on RfPs is adopted for procuring e-autos by EJADCS. • Managerial capacity of the Society is enhanced through hiring of new staff as per proposed role. • Organisational level manual and promotional video (in Malayalam) is released by EJADCS. • New rules (regarding permit for shared autos) have been issued.	• Formulating RFPs and documentation formats. • Follow up on GO request for operating shared autos. • Hiring support and creation of JDs and roles. • Close mentoring of new staff. • Training of 1 full-time employee. • Manual and video have been released by EJADCS.	◆ Support request from partner and activity initiated. ◆ RfP formulated in discussion with partner. ◆ JD developed in consultation with partner. ◆ 1 new team member hired as per the proposed JD. ◆ Video concept finalised with partner and shooting completed. ◆ Areas agreed with partner and mentoring initiated. ◆ RfP approved and adopted by Society. ◆ Follow-up and drafting documents/letters for securing GO for operating shared autos. ◆ Video is launched by EJADCS and KMC. ◆ Manual is initiated with EJADCS. ◆ Mentoring completed. ◆ Manual is released by EJADCS. ◆ GO issued allowing operations of shared e-autos in Kochi. ◆ Impact evaluated.	Letter from EJADCS (17.01.2020) MoM (30th January 12th February 5th March 8th May 2020)

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones (completed, ongoing, planned)	Source of verification
Improved co-operation mechanisms	◆ JDI is signed between KMC and EJADCS. ◆ Working Groups are formed specific to various UT projects undertaken by KMC, under existing traffic advisory committee for better coordination on inter modal integration and last mile connectivity. ◆ A channel of two-way communication facilitated by SMART-SUT has been established with KMRL on SA road project and with EJADCS on e-auto project. ◆ Support to KMC in formation of UMTA in Kochi.	◆ Drafting of JDI. Clear roles and responsibilities of KMC and EJADCS is defined. Mayor to assign nodal officers from KMC to coordinate the project based on terms agreed by KMC. ◆ Partners and stakeholder agencies develop a working module for relevant projects. ◆ Joint project update meetings carried out with KMRL, Regular interaction and troubleshooting with the KMC, KMRL etc. Facilitated by SMART-SUT. ◆ Technical discussions held with EJADCS. Coordinating the request for Working group. ◆ Develop Org structure, Draft JDs, define role of KMC in UMTA.	◆ JDI developed in consultation with partners. ◆ JDI approved by EJADCS & submitted for council approval. ◆ Council approved JDI on 1st June 2020. ◆ Working group initiated in Jan 2019 for e-auto project and members attended first meeting on e-auto project in Jan 2019. ◆ WGs on other projects formed in discussion with KMC (ex; SA road, FKM plan doc etc). ◆ Framework for coordination mechanism submitted/presented to partner (JDI and Working group concept). ◆ JDI signed by KMC & EJADCS. ◆ WG established by KMC.	Council approval JDI (awaiting) Letter of invitation by mayor to all WG members. Approved MoMs, mayor's letter to MD, KMRL. MoM (March 5, 2020)
State level outcomes				
Partners have increased technical, managerial and administrative capacities	◆ Development of online toolkit which will help KSRTC officials in route rationalisation process for future actions. ◆ Supporting trainings to KSRTC officials for use of online toolkit. ◆ Supporting KSRTC officials in developing framework for route numbering. ◆ Discussion and consultation with the stakeholders on the issues faced by women in PT and possible recommendation.	◆ Developing online toolkit for KSRTC which will simplify the process of undertaking route rationalisation for the officials. ◆ Trainings for the use of the online toolkit and route numbering. ◆ Discussion and consultation with the stakeholders on the issues faced by women in PT and possible recommendation.	◆ Appointment of contractor to develop the online toolkit, and framework for route numbering. ◆ Discussion of online toolkit with KSRTC. ◆ Submission of the toolkit to KSRTC. ◆ Trainings of EDP cell officials for the use of online toolkit. ◆ Discussion with stakeholders on gender studies.	MoM (29th July 2019) Mail from Principal Secretary.

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones (completed, ongoing, planned)	Source of verification
Improved organisational structure and performance	◆ Supporting KMTA in developing organisational structure, drafting JDs for hiring of officials. ◆ Supporting KMTA in exploring urban transport fund for UMTA.	◆ Developing organisational structure, JDs and identifying revenue sources for UMTA– city of Kochi.	◆ Request from Transport Department for support towards operationalisation of KMTA. ◆ Discussion with KMTA on the organisation structure, JDs and revenue sources. ◆ Finalisation of the organisation structure, JDs and revenue sources.	Mail conversation with PS, Transport Department.
Improved co-operation mechanisms	◆ Development of gender disaggregated data collection framework for KMTA.	◆ Developing of framework for gender disaggregated data collection in state for improved inclusive planning.	◆ Discussion with stakeholders on the data collection framework.	
Mechanisms for replication established	◆ Route rationalisation. ◆ Route numbering framework.	◆ Online toolkit developed, which can be used to undertake route rationalisation in other cities. ◆ Establishing framework for route numbering and showcasing it for one depot, which can be replicated in other depots/cities.	◆ Appointment of contractor to develop the online toolkit, and framework for route numbering. ◆ Discussion of online toolkit with KSRTC. ◆ Submission of the toolkit to KSRTC. ◆ Developing framework for route numbering. ◆ Adoption of the route numbering framework by KSRTC.	MoM (29th July 2019) Mail from Principal Secretary.
Support during COVID-19 pandemic	◆ Campaign for use of public transport during COVID pandemic.	◆ Online and offline campaign towards precautions to be undertaken while using PT. ◆ Online and offline campaign towards precautions taken by the govt. agencies. ◆ Promoting use of non-motorised transport through tactical measures in Kochi. ◆ Promoting use of non-motorised transport through posters and online campaign.	◆ Discussion with Transport Department. ◆ Approval from Motor Vehicles Department in undertaking the campaign. ◆ Discussion with CSML in supporting them in Cycles4 Change Challenge for showcasing use of NMT. ◆ Approval from CSML for supporting them in Cycles4Change Challenge. ◆ Online campaign concluded in June 2020. ◆ Posters put in Kochi in August 2020. ◆ Implementation of Cycles4Change Challenge in Jan-Feb 2021.	Mails from Transport Dept. Mail from CSML (4th Sept. 2020) Mail from MVD (8th May 2020) Presentation, video and photos showcasing the activities undertaken in Kochi.

Table 17: M&E Overview as on Sep 2020– Coimbatore/Tamil Nadu

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones(completed, ongoing, planned)	Source of verification
Partners have increased technical, managerial, and administrative capacities.	◆ At least 10 CCMC engineers from the Engineering Department receive in-depth training on various aspects of NMT because of which they start to include NMT components in all the future road projects based on appropriate street conditions. ◆ Engineering Staff in CCMC are better equipped to monitor road and NMT projects being undertaken by consultants/contractors and can leverage better, available guidelines and tools on this subject. ◆ At least 2 CCMC engineers are trained to become trainers and mentors for the CCMC staff. ◆ CCMC staff participate in and learn from live tactical urbanism events conducted in the city.	◆ Individual skill development on NMT related topics for CCMC engineers. ◆ Identify and train in-house trainers/mentors from within the CCMC team. ◆ Expert to explain the available design guidelines and references and demonstrate usage of. ◆ Demonstration projects in the city at selected locations to build leadership and capacities within CCMC for NMT.	◆ 3 workshops conducted to understand overall needs and area for support when it comes to UT for CCMS. ◆ Tactical urbanism events on a distinct stretch of road in the city are undertaken. ◆ Questionnaire for training needs developed. ◆ Case studies for learning selected and documented. ◆ Individual training needs assessment survey initiated. ◆ TNA survey initiated. ◆ MoU with TNIUS signed by GIZ for common training support, discussions are going on to include NMT related training schedule. ◆ Training modules identified, discussions with TNIUS initiated. ◆ Individual capacity development activity requested and initiated from partner. ◆ Focus group discussions completed. ◆ Shortlist for future in-house trainers/mentors and nodal officer created. ◆ Results of survey compiled. ◆ Recommendations for institutional strengthening of CCMC w.r.t NMT projects submitted. ◆ Guidance document on how to use available guidelines is submitted. ◆ Recommendations accepted.	MoMs Video, media articles, and reports submitted to CCMC Letter with support request Email with questionnaire sent via smart city cell to engineers MoU Post project impact survey via interviews and testimonials and questionnaire survey (OB2).

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones(completed, ongoing, planned)	Source of verification
Improved organisational structure and performance.	◆ City creates a road map for NMT development for the future. ◆ CCMC appoints nodal officer for NMT projects through NMT cell in the Corporation. ◆ CCMC comes out with a city level NMT network plan including organisational development required to realise the plan ◆ CCMC takes steps to create separate budget sub head for NMT infrastructure. ◆ Regular Training for street design and NMT projects is institutionalised through the help of new/improved training content and/or creation of designated mentors and trainers on this subject.	◆ Creation of a city level NMT plan. ◆ Inclusion of budget head on sustainable UT in the CCMC budget. ◆ Creation of a training calendar and training modules on NMT. ◆ Reviewing organisational processes pertaining to NMT projects.	◆ NMT network plan completed and published. ◆ Budget analyses for CCMC with suggestions on accessing finance for NMT projects submitted as part of NMT network plan. ◆ Nodal officer identified. ◆ Budget recommendations submitted as part of NMT plan. ◆ Training calendar to be created. ◆ Training modules to be institutionalised.	MoM and media stories from launch of plan Letter/office memo NMT Network Plan document
Improved co-operation mechanisms.	◆ Existing formal and informal co-ordination mechanisms regarding road safety and street improvement in the city are strengthened. ◆ CCMC emerges as a thought leader and driver of change on NMT and is leading the conversations and dialogues on sustainable mobility in the city and promoting the need for NMT considerations in ongoing and future road projects.	◆ Creation of a platform led by CCMC to discuss and update on NMT projects in the city. ◆ Sharing experiences and measures taken up by CCMC on national and international fora.	◆ Formal or informal mechanisms on better coordination on NMT and road safety in Coimbatore are suggested by CCMC. ◆ Commissioner presents the measures adopted in NMT by Coimbatore in a global webinar where more than 10 cities participated.	MoM Webinar proceedings
State-level outcome				
Improvement on technical, managerial and administrative capacities of partners.	◆ Development of toolkit which will help TNSTC officials in route rationalisation process for future actions. ◆ Supporting trainings to TNSTC officials for use of online toolkit. ◆ Supporting TNSTC officials in developing framework for route numbering.	◆ Developing online toolkit for TNSTC which will simplify the process of undertaking route rationalisation for the officials. ◆ Trainings for the use of the online toolkit and route numbering.	◆ Appointment of consultant to develop the online toolkit, and framework for route numbering. ◆ Discussion of online toolkit with TNSTC. ◆ Submission of the toolkit to TNSTC.	MoM (21st feb 2020) Mail from Principal Secretary

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestones(completed, ongoing, planned)	Source of verification
Knowledge enhancement on Electric bus route selection tool.	◆ Supporting TNSTC officials to identify the best potential routes through route selection tool for operation of electric buses. ◆ Supporting trainings to TNSTC officials for use of the toolkit.	◆ Developing Electric bus route selection tool.	◆ Appointment of consultant to develop the online toolkit, and framework for route selection. ◆ Discussion of online toolkit with TNSTC. ◆ Submission of the toolkit to TNSTC.	MoM (21stfeb 2020) Mail from Principal Secretary
Training on Urban Transport Assessment Toolkit.	◆ Supporting Transport department officials to identify the modal share for future travel demand through the assessment toolkit. ◆ Supporting trainings to Transport department officials for the use of the toolkit.	◆ Developing Excel based urban transport toolkit. ◆ Training for officials to use the toolkit.	◆ Appointment of consultant to develop the online toolkit, and framework for route selection. ◆ Discussion of online toolkit with Transport department. ◆ Submission of the toolkit to Transport department.	MoM (17th Dec 2020) mail from Transport Secretary
Mechanisms for replication established.	◆ State urban mobility model. ◆ Route rationalisation toolkit.	◆ Assessment toolkit developed, which can be used to estimate the modal share for future travel demand and route rationalisation as well in other cities. ◆ Establishing framework for mode choice on both public and private transport for other cities. ◆ Route numbering and showcasing it for one depot, which can be replicated in other depots/cities.	◆ Appointment of consultant to develop the toolkit. ◆ Discussion of online toolkit with transport department. ◆ Submission of the toolkit to TNSTC.	MoM (17th Dec 2020) mail from Transport Secretary
Support institute of road transport (IRT) on trainings to TNSTC.	◆ Preparation and implementation of training activities for all state transport corporations and metropolitan transport corporation (MTC) as well.	◆ Online and offline training programs on fleet management to increase ridership. ◆ Training program on E-Buses procurement, operations and maintenance. ◆ E-Buses battery technology and disposal. ◆ E-Buses charging infrastructure.	◆ Discussion with Transport Department. ◆ Preparation and Implementation of training programs.	MoM (21stfeb 2020 &17th Dec 2020) mail from Transport Secretary

Table 18: M&E Overview as on Sep 2020 – Bhubaneswar/Odisha

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestone (completed, ongoing, planned)	Source of verification
CRUT				
Improved individual competencies.	◆ Over 15 trainings on all relevant topics for bus operations planning involving both national and international experts have taken place for CRUT employees. ◆ 20 leaders within CRUT have been identified and "prepared". ◆ 1 full-time support staff has been made available to CRUT.	◆ Creation of training calendar and curricula. ◆ Training and study tours. ◆ Leadership development through coaching. ◆ Training of 1 full time staff under SMART-SUT to support CRUT in the future.	◆ Activity initiated from partner. ◆ Proposal for trainings and leadership development submitted. ◆ Needs assessment and trainings conducted. ◆ Training reports completed. ◆ Staff identified and recruited. ◆ Staff trained. ◆ Impact evaluated. ◆ Staff absorbed by CRUT.	E-mail documentation, Acknowledgement letter from GM (P&A), OB2 documentation, Group assignments from leadership mentoring program.
Improved organisational structure and performance.	◆ 3 Guidance manuals for city bus operations on organisational processes, operations, measurement and training have been adopted by CRUT. ◆ Changes to the org structure of CRUT to reflect needs of gross cost operations have been adopted. ◆ SOPs have been operationalised. ◆ New rules have been issued. ◆ New team members added.	◆ Org restructuring and creation of JDs and roles. ◆ Setting up of Standard Operating Procedures (SOPs) and documentation formats. ◆ Formation of new teams like Revenue Assurance Team (RAT). ◆ Facilitating technical support to monitor KPIs. ◆ Creations of SLA to monitor operations. ◆ Drafting of rules.	◆ Activity initiated. ◆ Recommendations submitted. ◆ Recommendations accepted. ◆ Impact evaluated.	Org structure before and after, Revenue ridership increase and reduction in leakage proof (efficiency in revenue collection due to establishment of RAT), Acknowledgement letter from GM, manual formally launched and adopted by CRUT.
Improved co-operation mechanisms.	◆ A channel of two-way communication facilitated by SMART-SUT has been established with the smart city cell and IT vendor (Chalo) to resolve data related issues.	◆ Support in TOR review of technology vendors. ◆ Regular interaction and troubleshooting with the BSCL and Chalo team. ◆ Reviewing suitability and correctness of technology development and communicating CRUTs requirement to IT vendors.	◆ Request for review initiated by partner. ◆ Multiple meetings conducted. ◆ Recommendations submitted. ◆ Action initiated. ◆ Formal or informal mechanism of communication is established.	E-mail documentation, concept notes and reports submitted, MoM

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestone (completed, ongoing, planned)	Source of verification
BDA, BSCL, BMC				
Improved individual competencies	• At least 3 trainings have taken place to sensitise professional staff in BDA on topics including parking policy and management plan, SD guidelines, master plan development and implementation of the LCMP. • At least 3 workshops cum trainings take place for key agencies like BDA, BSCL &BMC that improve capacities in these departments to. • Developing a parking policy for the city. • Provide improved parking management facilities and tools to manage parking demand, thereby enabling a shift towards sustainable UT modes. • Individual capacities of senior level staff at BMC and BSCL on topics like street design and parking management are improved.	• Multiple key person interviews and stakeholder meetings. • Trainings on SD guidelines implementation. • Trainings on parking policy. • Training on parking management plan. • Lectures/case studies presentation on CDP development. • Study visits and participation in conferences like Urban Mobility India 2019. • Day-to-day meetings and influencing. • Constant feedback loops at various stages of the project.	• Capacities assessment on parking management completed as part of intuitional analyses for the LCMP. • 1 training on parking policy for the city completed. • Request for virtual trainings on SD guidelines initiated. • One round of virtual stakeholder sensitisation session on SD guidelines completed. • Final workshops conducted.	Report MoM and letters Letter/ email MS Teams recordings/ screenshots
Improved organisational structure and performance	• Agency strengthens its existing approach towards CDP development by adopting a holistic and forward-looking TOR template to identify the consultants who will work on the CDP process for the city.	• Best practice review of other CDPs with both national and international examples. • Re-writing of the CDP TOR. • Workshop on elements of a comprehensive CDP TOR. • Q&A sessions on how to draft TORs. • Creation of internal guidance document on how to approach CDP process within the BDA team.	• Request by BDA to review the CDP TOR and make recommendations received. • Review of TOR submitted. • 2 trainings cum workshops by experts in field of urban planning delivered to the planning team at BDA. • Submission of recommendations on TOR and CDP development process to BDA completed. • BDA issues guidance template internally to its team to improve the CDP development approach.	Letter Email MoM and emails Report

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestone (completed, ongoing, planned)	Source of verification
	◆ BDA's (also BSCL, BMC's) database on mobility is strengthened through the research-based approaches adopted during the project.	◆ Data collection in areas like land use, parking, road inventories, public transport ridership, etc. Through research and surveys.	◆ Mobility data base created. ◆ Database submitted to agencies.	Excel files
	◆ BDA, BSCL improves further their existing SD guidelines to reflect more inclusive and local elements related to road users and space.	◆ Multiple key person interviews and stakeholder meetings. ◆ Review of the existing guidelines with recommendations for change. ◆ Trainings on SD guidelines implementation. ◆ Day-to-day meetings and influencing. ◆ Constant feedback loops at various stages of the project.	◆ Request to review SD guidelines received. ◆ Reviews submitted. ◆ Workshop to share the findings of the SD guidelines including org structure for adopting the O&M procedures of the review with all concerned departments completed. ◆ Recommendations officially adopted by BDA, BSCL and BMC.	Email Email and report
Improved co-operation mechanisms	◆ A technical working group and multi stakeholder co-ordination committee has been formally established under the Chairmanship of Vice Chairman, BDA, for the steering of the LCMP development process. ◆ 4 WG and 2 MPCC meetings took place to facilitate cooperation between institutions active in the urban transport sector in the city and get consensus on the different stages of the LCMP development process.	◆ Multiple key person interviews and stakeholder meetings to identify scope of work, agencies, approach, etc. ◆ Suggested list of departments to be part of the working groups and committees. ◆ One-on-one meetings with each department to explain the process. ◆ Frequent WG and MPCC meetings to get consensus and get feedback on the LCMP development process.	◆ LCMP development activity agreed with BDA. ◆ BDA issued memos to form WG and MPCC for the LCMP. ◆ Assessment of capacities on areas like NMT, PT, Parking, Electric mobility, etc. carried out for BDA, BMC, BSCL and CRUT as part of the LCMP institutional assessment. ◆ The required number of WG and MPCC meetings have taken place.	MoU between GIZ, HUDD and BDA Office memo Report MoMs

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestone (completed, ongoing, planned)	Source of verification
	◆ BDA initiates participatory process through a public campaign linked to the LCMP development process to sensitise citizens of the city on sustainable urban mobility and take their feedback on mobility experiences and expectations.	◆ Design of campaign elements- public engagement, social media outreach and communications strategy. ◆ Creation of a press release on LCMP for all prominent Odia, English and Hindi dailies. ◆ Focus group discussions with various segments of the society including school children, elderly, women, slum dwellers, office commuters, etc. On their mobility needs and experiences. ◆ Communication strategy containing 5-6 media creatives on various messages regarding the concept of an LCMP in a user-friendly manner. ◆ Creation of the LCMP website to share mobility strategies being planned by the city and solicit feedback.	◆ A public campaign plan for the LCMP has been submitted to BDA. ◆ Focus group discussions with various segments of the society including school children, elderly, women, slum dwellers, office commuters, etc. have been completed. ◆ Press release, media collaterals and LCMP website content (to be hosted on www.bhubaneswar.mehas been developed and submitted to BDA and BSCL teams. ◆ Integration of the LCMP website is achieved and the site is live. ◆ BDA has adopted the collaterals and shared them win the city residents.	MoM, presentation Report, photographs, documentation, letter from BDA requesting civil society groups to participate. Presentation, documents, emails, press release.
	◆ A technical working group has been formally set up under the leadership the head of BSCL and BMC for the steering of Bhubaneswar's parking policy and management plan.	◆ Day-to-day meetings and influencing. ◆ Constant feedback loops at various stages of the project. ◆ Suggestions on members and roles and functions of the WG.	◆ Project initiation workshop for parking policy and management action plan takes place. ◆ Official request to set up working group for parking policy and management plan is submitted to Head BMC/BSCL. ◆ Working group on parking is created. ◆ Multiple rounds of working group meetings to deliberate the policy have taken place and the policy has been approved.	MoM Letter

and its impact is presented in table 15-17 below:

3.6 Synergies with planned/ ongoing national/international CD related initiatives

The urban transport sector in India has been the beneficiary of several national and international initiatives – all having the goal to improve the urban transport system. The multitude of active institutions requires a close communication and collaboration to ensure that synergies on similar activities are established, duplications avoided, and most importantly, the city does not feel overburdened as well as confronted with contradictory results.

3.6.1 Overarching in all three cities

As part of the Indo-German cooperation, Kochi (Kerala), Bhubaneswar (Odisha) and Coimbatore (Tamil Nadu) were identified as partner cities for implementation. Under the Indo-German cooperation, various other GIZ projects were also supporting and implementing activities in each of the above mentioned cities. For example, SMART-SUT's sister projects **Sustainable Urban Development for Smart Cities** (SUD-SC) and **Climate Smart Cities** (CSC) have complimentary scopes of work (focussing among others on urban housing and urban climate action). Thus, synergies are sought in the conceptualisation of activities at the city/ state level across the entire project period and across the pallet of different interventions.

In addition to the initiatives of the German Government, the Indian government and non-governmental organisations regularly start new initiatives that affect the CD support of SMART-SUT. One such example is the **Cycles4Change** movement initiated by MoHUA with the aim for cities to implement cycle-friendly interventions. While the challenge focusses on the quick turnaround of projects, it sensitises, prepares and implicitly develops capacities of decision-makers on understanding the role and potential of NMT in the urban transport system in the wake of COVID-19.

Beyond that, several agencies work in only one (or two) of the partner cities in the urban mobility space. A list of these agencies is provided below:

3.6.2 Kochi:

♦ **TUMI:** is driving the improvement of urban transport in cities around the globe. In Kochi, their project on reimagining Fort Kochi has 3 main phases 1) Tactical Urbanism Projects, 2) Jetty Public Space Development, 3) Way finding signage. It also aims to improve conditions to use public transport through introducing street furniture, way signage, and multi-modal connectivity nodes. SMART-SUT is working together with one of the TUMI partners, WRI, on these activities.

♦ **KfW:** is in the process of financing a project on waterborne transport in Kochi together with KMRL. Once approved, the schedule and route network are to be aligned with the new metro and bus lines.

♦ **UN-HABITAT:** is providing financial support to KMC under the Urban Pathways project (managed by C-HED and Wuppertal Institute) in Kochi. SMART-SUT aligned its efforts to UN-Habitat's by preparing the scoping report to explore how the UN-Habitat seed funding of 10,000 Euro could be utilised to launch e-autos in Kochi and went on to play an active role in delivering the project.

♦ **Agence Française de Développement (AFD):** is leading 'Mobilise your City (MYC)' in 3 cities in India – Kochi, Nagpur and Ahmedabad. MYC being a French-German joint initiative, a cooperation is actively being sought. In a joint meeting with KMC, a clear division on the scope of activities between MYC and SMART-SUT was done early on in the project. The capacity development activities were agreed to be taken up jointly as the target actors are the same.

♦ **World Resources Institute (WRI) India** is providing KMC and KMRL technical support on urban development/design and transport related projects (softer measures like NMT, road improvement,

multimodal interchange). WRI is jointly implementing projects in Fort Kochi (ro-ro- boat jetty interchange re-design, some tactical urbanism measures) with the approx. 100,000 Euro funding under the German Transformative Urban Mobility Initiative (TUMI). An active collaboration is being sought to synergies both WRI and SMART-SUT's work under the TUMI. SMART-SUT collaborated with WRI to prepare the local connectivity map for Fort Kochi Island (as part of SMART SUT's support to KMC for the development of a Transport Strategy Document) which TUMI is supporting the implementation of.

♦ **National Institute of Urban Affairs (NIUA):** is supporting KMC in various urban development projects like Smart Data, City Investments, Climate Smart Cities and Smart City Innovation Lab. The partnership between C-HED and NIUA is expected to help the preparation of development projects for Kochi including in the areas of heritage and culture.

♦ **ICLEI:** is exploring freight related projects via technical cooperation with the city.

♦ **Kerala Institute of Labour and Employment (KILE):** Kerala Institute of Labour and Employment is an autonomous body constituted by the Government of Kerala for the purpose of training, research, and publications in labour and allied subjects. Some of the areas they work on are trainings on eco driving (for motor workers from KMC), awareness building in context of disabled individuals, training programs for trade union representatives, women labour participation in Kerala's economy.

In addition to the above, several private players, including consulting firms like KPMG and vehicle manufacturers like Mahindra, are working in the space of urban mobility in the city.

3.6.3 Coimbatore

♦ **KfW**: In Tamil Nadu, KfW is supporting with the Ministry of Transport to modernisetheir bus fleet. SMART-SUT is working closely with KfW, for example to digitalise public transport (Output 3 indicator). Further

potential financing projects for non-motorised transport, NMT infrastructure are being identified in Coimbatore and the other three emerging cities (Tirupur, Erode, Salem).

♦ **CapaCITIES:** Funded by the Swiss Agency for Development and Cooperation (SDC), the project consortium consists of South Pole Group (Switzerland), ICLEI - Local Governments for Sustainability, South Asia, and Econcept (Switzerland), and since 2016 has been working towards developing enhanced capacities of city officials in four project cities in India (Coimbatore being one of them) to mainstream implementation of a climate resilience action plan in various sectors including solid and liquid waste management and transport.

♦ **Fraunhofer:** In a strategic cooperation with KfW. Fraunhofer IAO co-designed a project for supporting the city of Coimbatore in the development of a roadmap for sustainable urban mobility. The Smart city lab was set up for a period of 6 months with various phases of collaboration with various stakeholders in the City. SMART SUT team provided inputs to the city and Fraunhofer for its project proposals and final report to the city.

♦ **UYIR:** A local Non-profit initiative that works on road safety and issues on impact of road crashes on human body. This initiative actively promotes various road safety guidelines such as the usage of helmets and seat belts, discouraging red light jumping, usage of zebra crossings. SMART SUT collaborated with the UYIR team on road safety issues.

♦ **Institute of Transport development and Policy (ITDP):** is a global non-profit organisation that works with cities worldwide to design and implement sustainable transport systems and policy solutions. ITDP has a long-standing association with Coimbatore. Their continuous support yielded in a Street Design and Management Policy that addresses both infrastructural needs and services and mechanisms that make cycling, walking, and PT safe, convenient,

and comfortable. SMART-SUT has started from where ITDP left off, and through a clear and open process of communication, has identified priority areas for the city on improving NMT infrastructure and services. As an example, one of the areas that SMART-SUT is looking at is capacity development of engineers and practitioners in CCMC to use and reference the available policies and guidelines in their day-to-day work.

♦ **Tamil Nadu Institute for Urban Studies (TNIUS):** A premier training and research Institute in urban management promoted by the Government of Tamil Nadu, TNIUS plans and conducts training programs for ULBs in Tamil Nadu. The focus on urban mobility in the existing training curriculum is limited and while it essentially checks the necessary boxes topically,streetlights, road furniture, bus stop design, geometrics, DPR preparation, maintenance, the emphasis on inclusive street design is missing. GIZ and TNIUS have signed an MOU where SMART-SUT and TNIUS will work together to strengthen and expand the scope of TNIUS's existing training programs introduce new modules on urban mobility. TNIUS, in turn will also develop its own capacities as a trainer to sustain the sharing of this knowledge in a more regular and upscale manner.

3.6.4 Bhubaneswar:

♦ **GIZ** – GIZ's ICT-Based Adaptation to Climate Change in Cities programme brings together expertise in urban development, climate change adaptation and information and communication technologies (ICT) to customise and test digital solutions that engage citizens in the co-creation of their cities to achieve urban resilience. Where necessary, SMART-SUT considers ICT-A's work and vice-versa.

♦ **KfW:** financed a bus modernisation project which was included in the development of a city-wide transport plan to ensure integration with other modes of transport.

♦ **WRI India:** had a 2-year collaboration with BDA as a knowledge partner on topics like

inclusive street design, road safety and other smart mobility solutions, which came to an end in 2019.

♦ **The IBI Group:** supported the development of a Smart City Challenge proposal for the city of Bhubaneswar and helped the city prepare its Smart City Plan which was adjudged the first rank out of 98 cities in the country. IBI established a Program Management Unit with over 30 staff in BDA and BSCL, and has been since supporting the planning, designing and implementation of urban development projects in the city. They have been working closely with the establishment of Intelligent City Operations and Management Centre meant to oversee multiple city sub-systems including traffic management, parking, Bus/Transit Operations, common fare card, smart utilities, emergency response and city incident management. SMART-SUT coordinates regularly with IBI on areas like review of SD guidelines prepared by BUKC, ITS development for improving city bus operations.

♦ **Xavier University Bhubaneswar (XUB):** SMART-SUT has been collaborating with faculty and students from XUB's Masters programs for conducting user satisfaction surveys for Mo Bus. Similarly, students from XIBM were taken as an intern by CRUT in 2019.

♦ **Odisha Skill Development Authority:** OSDA is the main implementing agency for skills development in Odisha. The OSDA has been mandated by the Government of Odisha with an overarching mission to bring about transformative human capital development across the state. OSDA and CRUT are working together since 2018 for skill development for the workforce of CRUT. The main objectives of this collaboration are to upskill the drivers, conductors, and support staff of CRUT and help create a world class identity and brand image for CRUT. Complementing OSDA's support, SMART-SUT focusses on developing capacities on the technical and operations related aspects of the planners and team leaders at CRUT.

Ministry of Housing and Urban Affairs (MoHUA) and Deutsche Gesellschaft for 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 the 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 the expansion of public transport infrastructure, multimodal integration, low-emission or zero-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.