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



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

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
ССМС	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
СМР	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
КМС	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
МоМ	Minutes of Meeting
MoU	Memorandum of Understanding
MPCC	Mobility Plan Coordination Committee
МТС	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
ТСР	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:

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. State capacities for replication and resultoriented steering

of measures are

improved

Outcome 4:

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

Urban transportas as 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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PROJECT INTRODUCTION

1



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 multiactor 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 steppingstone 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

¹In 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.

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). 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).	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		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).
nstitutional 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).	

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

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.





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 2019². 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



²Sources: 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 longerterm 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 innovate³.

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)

³ p28, Cooperation Management for 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 intermodal 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 cities⁴.

City administrations need to effectively engage

 Table 2: Capacity Development Results Table⁵

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:

transport projects is improved						
Outcome 1: Outcome 2:			Outco	ome 3:	Outcome 4:	
The units/departments of SMART-SUT's im- plementation partners and affiliated institution have increased techni managerial, and administrative capaciti in the area of urban transport.	s ns cal, ies	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 estab- lished and/or in- creased cooperation mechanisms within and between relevant organisations and networks.		State capacities for replication and result- oriented steering of measures are improved.
Output 1:	Ou	tput 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.	Guid reco orga stre impl tran and UT bee city.	delines/ ommendations/ dules for anisational ngthening for roved urban sport planning /or provision of services have n adopted in each	Technical work groups or simil co-ordination mechanism are established in city to facilitate cooperation be institutions acti the urban trans sector in the ci	ing ar eeach tween ve in sport ty.	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.

Objective: The ability of key actors in the pilot cities to plan and implement urban

⁴Source: "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

⁵The 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 tailormade by city but by city-based institution. Grown out of the city's demand to support capacity development likewise of longestablished 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.





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



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 selfassessed 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-





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 indepth 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 cooperation and mechanisms in the Indian urban transport sector are manifold and the mandates by institution and department 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

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. 		

 Table 4: SMART-SUT Partners

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,	Training institute for all urban local bodies in Tamil Nadu State.
Coimpatore	 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,	 Primary stakeholder in urban transport ecosystem in Coimbatore. 		
Compatore	 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

Key partner Planning of agency	 KMC, Kochi Urban transf Role: Road Curban transf Bof ferry on Engineering works, operation Cother UT prc evel agencie CSML being seek approvi- the other har coordinate w from acquirit roads. 74th Constitu in Kerala has in city planni mandate to f due to lack o Country plan which requiri- plan docume various focus changes in p co-operation strengthen th master plan There exists with represet
f UT projects	port as a function is not transferred to still a state function in Kerala. department plans road development ber DTPS. Djects are planned by external state ess like SWTD KSINC, KSRTC, KURTC. J an SPV with 50% stake with KMC, al for all projects from KMC. KMRL on nd is a state level agency and does not with KMC for any of their projects, apart ng permit to use space on KMC owned tional Amendment and decentralisation s paved way to a bottom up approach ing, which gave local bodies the prepare master plans of cities. In Kochi of in-house capacity, the Town and ning Department prepares the same, es approval from KMC council. Sument prepared by SMART-SUT will ic planning document that will explore the KMC can engage more actively transport planning of the city. The art will provide recommendations on s areas in transport, including possible processes followed by KMC, propose in mechanism between agencies, he legal provision of KMC to prepare (focusing on transport projects and in this or the local possible processes followed by KMC, propose in mechanism between agencies, he legal provision of KMC to prepare (focusing on transport projects and in thation from various state transport a Traffic Advisory Committee in KMC
UT project identification, execution & monitoring	 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 transport projects identified and improver are denerally based on Detailed Town Planning schemes. Project implementation is fully transport projects identified and improver are denerally based on Detailed Town Planning schemes. Role Iimplemented by CSML and require approval from KMC. This also includes mainly road works and some IPT modes (still in planning stage). Role Iimited 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
Budget for UT projects	 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.
Regulation/ providing guidelines	 KMC can issuess guidelines related to planning and street design for projects. KMC can tregulate transport services through GOs, for example KMC has applied for special Government Order permitting operations of autos on shared basis to State transport department.
Training and developmen	 None provide as routine part of KMC operations. Only through opportunities provided in development cooperation projects.

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

r Regulation/ Train providing devel guidelines	None Non throi oppo prov deve coop rojé rs.	 Works closely With GoK with GoK with GoK and prepares guidelines, activ government activ act	None In-h trair devi activ regu take		
Budget for UT projects	 Can guide projects to be taken under budget or plan fund. Budget allocat for projects submitted by ward councillo 	 KMRL receive funds from sta and prepares budgets for all transport projects its involved in. KMC also receives multilateral and bi-lateral funding too for urban transpoi initiatives. 	 They only spent funds made availabl under smart c projects. 		
UT project identification, execution & monitoring	 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). 	 Guided by CMP. This used to be taken up by Urban Transport department in KMRL. However, from Nov 2019 onwards UT is dissolved. 	 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. 		
Planning of UT projects	 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. 	 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. 	 Have identified urban transport projects (road development/improvement, IPT services etc) and is responsible for the planning and implementation of the same. 		
Key partner agency	KMC, Mayor Role: Heads KMC and drives decision-making KMC, Councillor Role: Political governing body (Leadership at KMC).	KMRL Role: Joint venture company with equal equity contribution of Government of India and Government of Kerala Established in 2011.	CSML Role: SPV set up under SCM to enhance speed and delivery of urban development projects in the ABD area. Established in 2007.		
Key partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
--	---	--	--	---	---
Ermakulam Jilla Autorickshaw Driver's Cooperative Society (EJADCS), Kochi Role: aggregate the autorickshaw operations for seamless mobility(diesel, petrol, electric 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 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. 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 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 (fractions and works in	emerged from the co-ordination of different political ur dependently for the benefit of auto drivers of Ernakula	nions (such as CITU, INTUC, AITUC, BM: am. First of its kind non-political body ded	S, STU and TUCI). It licated to the welfare	t has no inclination to of the auto rickshaw	any political drivers.

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or UT Regulation/ 1 providing guidelines c	 Projects Projects Projects projects progulate the activities inals) parking management, parking management, encroachment removal, advertisements). Follows IRC standards and any other relevant standards. ort budget generally under roads projects.
Budget foi projects	 Budget fol transport I (Streets, t and termin are part o budgeting No separa for sustair modes like all transpo heads are clubbed u and bridge special pr
UT project identification, execution & monitoring	 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.
Planning of UT projects	 Mandate for road and bridge development, urban planning⁶ (74th CAA), public streets⁷, and operation of bus terminals/stops. Lacks any distinct or unique mandate across all urban transport topics.
Key partner agency	CCMC - Coimbatore City Municipal Corporation Key Role: Driving urban development in the city of Coimbatore Established in 1981.

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

 $^674 th$ CAA 7 CCMC Act 1981 (Section 236 to 249)

Training and development	 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.
Regulation/ providing guidelines	 Follows the guidelines of state transport department. Follows safety standards as per MV Act. ASRTU provides guidance for various aspects of bus operation.
Budget for UT projects	 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.
UT project identification, execution & monitoring	 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.
Planning of UT projects	 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.
Key partner agency	TNSTC - Tamil Nadu State Transport Corporation Limited (Coimbatore) Established: 1972; TNSTC (CBE) Ltd in 2003.

ƙey partner agency	Planning of UT projects	UT project identification, execution & monitoring	Budget for UT projects	Regulation/ providing guidelines	Training and development
NIUS - Tamil Nadu Istitute for Urban itudies (TNIUS) tole: State- evel training center for Il ULBs across Tamil ladu :stablished 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.

Key partner P agency	CRUT – Capital Region Urban Transport, Bhubaneswar Role: Plan, manage and operate public transit and public bike sharing services in Bhubaneswar, Cuttack, Puri, Konark and Khorark and Khorark and Cuttack, Puri, 2018.	BDA, Bhubaneswar Role: Planning ®ulatory agency at larger regional/ area scale for Bhubaneswar. Established in 1983.
lanning of UT projects	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.	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.
UT project identification, execution & monitoring	 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 . 	 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.
Budget for UT projects	 Budget for CRUT to operate public transport services is sanctioned and funded by state. Annual budget varies- 1.44 Billion INR is budget for varies- 1.44 Billion INR is budget for 2020-21 which will be paid in instalments 0.19 Billion INR received as of 0.19 Billion INR received as of 0.5/2020. CRUT manages to recover 40% of recurring expenses through fare revenue. 	 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.
Regulation/ providing guidelines	 CRUT can issues penalties and incentives for operators and users like penalty on ticketless travellers, reduction of fare, etc. 	 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.
Training and development	 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. 	 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.

partner Planning ncy	L • Geogra : SPV for area in rt Cities • Provisi- ion plans/ solution signals blished: • Plannir consult • Constru off-stre • Collecti • Develo	 Respor Provide Respor Infrastri walkwa services Space 1 blished: Land fo blished: Land fo as Identific icipality Constru
g of UT projects	aphical planning scope limited to one the city: micro level planning. on of infrastructure, design, smart ns, ITS, smart roads, automated , smart mobility card, etc. ng done by in-house staff and external tants. uction and maintenance of on street and et parking infrastructure. I uction and maintenance of on street and et parking infrastructure. I uction of parking parking zones. ion of parking Policy and Parking Plan.	sible for area level planning including ucture like roads, parking, vending, ys. for bus shelters. ation of BRTS corridors. ation of BRTS corridors. ation of PBS dock-less station is. cation of roads where bicycling lanes implemented. uction and maintenance of footpaths.
UT project identification, execution & monitoring	 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. 	 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.
Budget for UT projects	 Receives its project budget from the Smart Cities Mission scheme. 	 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.
Regulation/ providing guidelines	 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. 	 Along with other agencies plus through contractors.
Training and development	 Most of the team is external consultants trained in their fields, hence limited trainings conducted, unless something on-the-job and specific is identified. 	 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) Landuse 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.

the urban transport In Bhubaneswar, 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/statewise 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	Existing capacities	Intended capacities	Sources of	Suggested interventions
agency			assessment	
KMC	Individual level:	Individual level:	 Consultations: 	 Leadership Development: of C-HED and
	 At the leadership level, there is open-ness to 	 Technical expertise: The KMC 	Launch of	core team in KMC through trainings.
	understand concepts relating to all transport project	engineers responsible for road	workshops	 Technical Skills enhancement: Trainings
	being planned under various technical cooperation	development generally lack	together in	on how to use the guidebook on roadway
	projects by KMC.	expertise and know how on new	2018.	design template for city engineers.
	 In-house technical team (engineering department, 	concepts on Complete street	 Participants: 	 Creating toolkits/guidebooks for KMC
	KMC) for the development of roads in the city. The	design, promoting P I, IP I, NMI	 Mayor, KMC, 	to better plan and manage projects:
	staff is hired on a rotational basis and not permanent	elc.	C-HED, AFD,	Development of Street design guidebook
	for KMC.	 Lacks inhouse capacity to review 	GIZ	(specific to fort Kochi) which will guide
	Organisational level:	the work done taken up by	 Face to face 	KMC engineers on concepts like 'complete
	There is a lack of processes and quidance is a set	lecrinical cooperation projects like	meeting jointly	street aesign, ivivi i corriaor aesign etc).
	 Intere is a rack of processes and guidance infinouse within KMC to monitor and co-ordinate LT projects 	SIMARI-SUI.	with AFD	 Development of internal project
	that come its way associally through technical	 In house capacities to implement 	on capacity	management module to guide KMC's
		and manage road projects is	development	involvement with technical cooperation
	cooperation.	missing.	of partner	partners, with clear instructions on
	 UT projects other than on road development are 	Organicational lovel:	agencies	methodology to be followed by technical
	tendered out to external organisations because KMC		(MoM dated	co-operations.
	has yet to develop in-house abilities on UT. This is	 Lack of transport planners in KIMC 	23-11-2018	 Setting up Agreements: Drafting (D)
	due to the fact that UT has been a state mandate and	and C-HED and the existing staff	approved with	between KMC and EIADCS on e-airto
	is not presently managed by ULBs in Kerala.	of both agencies lack experience in	list of projects	between twind and Eachoo on e-auto project implementation
	 C-HED as an autonomous vet closely tied 	transport planning, Electric mobility	identified).	
	institution to KMC. provides managerial support and	etc. Hence KMC relies on technical	 Redular 	Acquiring Legal Permits for taking up
	coordinates UT projects initiated by KMC through	corporation project support solely	meetings with	new roles: Supporting KINC to acquire a
	technical cooperation.	for planning and implementation of	Mavor KMC	Government Urder allowing operations of
	 KMC is exploring formation of working graphs with 	all projects started under technical	on capacity	shared reeder services in KIVIC.
	etabaholdere (MA/D GOK Traffic nolice auto society	corporation projects.	develonment	 Formation of New UT Cell/Team within
	etc) to facilitate transport projects now beind initiated	 Given that Mayor will represent 	activities of	KMC: to pursue projects like IPT feeder,
	and nlanned by KMC.	KMC in the UMTA board once it is	KMC and	route rationalisation, strategy documents
		set in Kochi, there is at present no	F.IADCS	addressing seamless mobility and
	Cooperation level:	in-house transport team in KMC/C-	Concool MoMo	connectivity etc.) it takes up with support
	 In the context of KMC preparing project proposals 	HED as expert advisory. Presently	Sources: Iviolvis	of various technical co-operations like
	for various UT projects under various technical	such a team does not exist.	(suille issued	SMART-SUT and also as advisory to
	cooperation; working groups maybe formed specific	 Understanding of measures and 	bo isened by	UMIA. It is important to ensure that
	to each UT project under the Traffic Advisory	tools to access financing for UT	KMC)	this team is hired on a long-term basis,
	Committee. Through this KMC can ensure better	projects needs to be enhanced.	NWO).	ensuring that the staff is retained from
	coordination and seek special permits for engaging	Cooperation level		Inception to completion of projects; longer
	in implementation and operations of UT projects.			
	E.g. KMC can seek issuance of GOs from state	Need for better coordination with		general statt/engineers in KIMC.
	government for operation of shared e-autos on fixed	GUK, CSIML, KIMRL, MVU, ITATTIC police and other state transport		 Formation of working groups to facilitate
	roures.	bodies identified on planning and		the smooth planning and implementation o LT projects initiated by KMC
	 NNUC carl better utilise its position and powers to become the focal point of mobility related activities in 	implementation of UT projects by		 Support to KMC and GoK in formation of
	the city, esp. when it comes to road re-design and last	KMC.		

mile connectivity.

Suggested interventions	 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 for key personnel to support for technical and managerial tasks involved in e-auto operations. Guidance for procuring e-autos as this will allow the Society to expand its operations. Formulating RFP and other doel. Formulating financial benefits. Facilitate improved concent and for availing financial benefits. Pavelopment of organisation the necessary legal support. Development of organisation fue city.
Sources of assessment	 2 Stakeholder consultations with local coordination committee members from 6 trade unions from Fort Kochi and Mattancherry area (Dec 2018) Various other meetings were conducted with City coordination 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).
Intended capacities	 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 operations of e-autos (especially important in an operations of e-autos (especially important). Organisation, with no prior experience of planning, operating and monitoring e-autos and the proceeses 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 first and last mile connectivity and accessibility in the city. Vet 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. 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 operationing the functioning of the Society), infrastructure (office space requirement), financial resources administrative and operations the 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 at the board members.
Existing capacities	 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 is since its inception). Little experience in operational and administrative procedures related to procurement, availing loans and other benefits under the Society in partnership with KMRL had administrative procedures related to procurement, availing loans and other benefits 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 in the Society and a board of directors with strong political influence, the Society enjoys the benefit of political willower and workforce to support their mandated operations.
Partner agency	Ernakulam Jilla Autorickshaw Drivers Cooperative Society (EJADCS)

Coimbatore
Assessment -
el Capacity
City-leve
Table 9:

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 experience to mobility interventors under simal city projects. Based on exposure to mobility interventors und sicussion with CCMC, it is left that at least 20% of the engineers have exploreers have esensitieation to attendy published stread by informating. However, there is a huge gap in knowledge when it cornes to application of already published stread by signal explorements. Numl projects (even at a goilor lewel) 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 poen opticate (even at a goilor stread) published stread by the city in convexity. The projects even at a goilor set of the city. Learning culture: Within CCMC, there is a healthy culture of poen of expensions and knowledge exchange. Capacities of leaders: Leaders within CCMC are proactive and sicussions and knowledge exchange. Capacities of leaders: Leaders within CCMC are proactive and sicussions and knowledge exchange. Capacities of leaders: Leaders within CCMC are proactive and sensitisedtowards urban mobility projects and have carried forward the leagery that Coimbatore and Tamil Nadu share, being a pro-NMT city/state in the county. Capacities of ruban transport projects in Combatore has also triggered for the implementation of important urban mobility provements. Comparing a dependence and set steps of and besin or point of city between the part of the engineers to carried for and city and city between the point of the engineers to cardia data and set set set of point the county. Camasions and knowledge exchange. Capacities of urban transport projects and have carried forward the lenger phate combinity prosects and have carried forwards with the county. Camasistic countind a data carried forward data cardia data carried forwards the	 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 knewledge 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: A city level planning approach to plan and implement the mobility projects seamlessly. A city level planning document on NMT from processes like training or 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 to wards identifying the training gaps and the training received. Support to build training gaps and the training received. Support to build training docus on urban nobility within curriculum of Tamil Nadu institute for Urban Studies. Dedicated budget head in CCMC's annual budget for NMT. 	 Meetings and consultations over the 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 fiscus 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 proactive management capacity in the areas of road safety, NMT planning and design and other related areas of road safety, NMT planning and design and other related areas of road safety, NMT planning and design and other related areas of road safety, NMT planning and design and other related areas of road safety, NMT planning and design and other related areas of road safety, NMT planning and capacities within the CCMC team within the CCMC team of the other tainers/mentors from within the CCMC team of the other related areas through on NMT issues. Dewelopment of a dedicated department and/or staff working on NMT plan. Inclusion of build leadership and capacities within CCMC for NMT. Create a training and update 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. 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 training for municipal staff. 	 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.

Bhubaneswar
Assessment -
Capacity
City-level
Table 10:

2 e	 Existing capacities 	Intended capacities	
	 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). 	 Individual level: transport planning expertise, ITS, legal proced transport planning out of smart card and overall teledership. 	dures, revenue echnical
	 Initially drew on resource staff from BUKC. For a lot of the staff, it is "learning on the 	Organisational level:	
	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.	 Org surcture and processes, team surright and resources, access to data, performance measur systems, regular training interventions, TOR dec drafting rules and regulations. 	ement siphering,
	 Mostly young and motivated staff with mixed background; eager to learn. 	 Route planning approaches lack in-depth impact feasibility studies and data for evidence-based plant 	assessment/ lanning.
	 Limited experience of technical aspects like planning, scheduling and monitoring bus services. 	 essential to have a forthightly review of operation relevant stakeholders since this is a new organise has promised comfortable and affordable PT. 	s with ation which
	 Little experience with drafting rules, TORs. etc. 	 Cooperation level: communication and data sharing with the smart cit 	ly cell.
	 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. 		

Suggested interventions	 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 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.
Sources of assessment	 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.
Intended capacities	 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 tooi. Drganisation levei. 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. Need for a formal contingent incoming for the CDP by other departments/agencies like BMC, Works etc.
Existing capacities	 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 transfer to BDA from BUKC is seen. Dverall knowledge transfer to BDA from 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 development process and eveloping the city's master plan, and requested SMART-SUT's support for 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.
Partner agency	BDA

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 bMUs and there is a clear knowledge of deliverables and processes on part of the BSCL management. 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 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.

Suggested interventions	 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.
Sources of assessment	 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.
Intended capacities	 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 complie mobility needs and translate that into NMT requirements.
Existing capacities	 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.
Partner agency	BMC

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.

	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. 	

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
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:



- 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.

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.

	Table 11: City	v level Capacit [,]	v Development	Action Plan -	· Kochi ((Activities ar	nd Hypothesis
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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.

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. Demonstration 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. Creation of budget head on sustainable UT in the CCMC budget. Creation of a training and design and other related areas. Creation of a training and design and other related areas. Creation of a training and design and other related areas. Creation of a projects head on sustainable UT in the CCMC budget. 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 An and bolding and technical support to CCMC engineers on a regular basis. On the job trainings for CCMC officials to plan, design, implement and maintain 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. Demonstration through tactical urbanism measures. Peer to peer learning Site visits Study tour for leadership level staff to other countries. Webinars Webinars Onthomorphic 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: Braticipatin to create position of a nodal officer in CCMC. Breview of budgeting process. Breview of budgeting process. Periting of documentation to create position of a nodal officer in CCMC. Drafting of documentation to create position of related to NMT projects. 	 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 based on appropriate street conditions. Engineering Staff in CCMC have better tools to monitor road and leverage better, available guidelines and tools on this subject. At least 2 CCMC engineers are trained to become trainers and neutors for the CCMC staff. Organisational CCMC appoints one nodal officer for NMT projects through NMT officantiation (dual benefit of individual and institutional). CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city. CCMC staff participate in and learn from live tactical urbanism events conducted in the city and promoting the need for

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

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Proposed interventions	Implementation & Cooperation partner	Suggested CD measures	Expected outputs
 Crganisation restructuring and creating JDs and croles 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. Workshops on Sustainable PT. Workshops on Sustainable PT. Study tours - BEST, BMTC, Munich. In-house handholding. Participation in UT conferences like UMI. Participation in UT conferences like UMI. Review of office documents, consultant TORs and reports. Special coaching for 20 colleagues. Review of office documents, consultant TORs and reports. Developments of rules and guidelines (tickettess penalty, route planning). Development of JDs, roles and responsibilities for various positions. SOP's for operations. Terensionisbilities for various positions. Terensionisbilities for various positions. Terensionis 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. Fare revision-CRUT was able to make concrete decision on revising of fare structure by visualising the future impacts of this decision.

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

Expected outputs	 A technical working group and multi stakeholder co-ordination committee has been formally established under the Chairmanship of Vice Chairman, BDA, for the stearing 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. 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. A theast 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 sintifiates 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 sintifiates participatory process for planning a public campaign to 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 expects stilles BDA, improves further its existing suproach towards 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, improves further its existing solicy and manage parking dentify. BDA improves further its existing state place for key agencies like BDA, SCL & BMC that improve capacities in these departments to. At theast 3 workshops cum trainings take place for key agencies like
Suggested CD measures	 Creation of steering mechanisms. Personal interviews/meetings with UT officials. Review of documents on UT like parking. 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.
Implementation & Cooperation partner	Implementation: BDA Cooperation: CRUT, BMC, BSCL, Traffic Police, HUDD, Works Department
Proposed interventions	 SDA SDA 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.

Expected outputs	 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.
Suggested CD measures	 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. Constant feedback loops at various stages of the project. Workshops
Implementation & Cooperation partner	Implementation BSCL, BMC Cooperation: Traffic police, BDA, CRUT, HUDD
Proposed nterventions	SSCL 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.

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, outlined as 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)

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	0	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	со	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	С	со	31.12.19									

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

⁸The 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	С	со	31.12.19									
	Individual capacity building of board members on running a cooperative model, procurement procedures, availing loans, drafting TORs and RfPs	I	со	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	0	on	30.09.20									
	Development of organisational level manual & video in English and Malayalam on the above	0	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	0	pl	30.06.21									
	Strategies for in- house HRD	0	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
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OB1	UMTA in Kerala		on	31.12.20									
	Support legal and operational framework formulation	С	on	31.12.20									
OB2	Monitoring and evaluation of KMC, EJADCS		pl	30.06.21									
State	level activities												
OA2	Route Rationalisation a Trivandrum	nd City	/ Bus Imp	provement for o	city of								
	Kick-off workshop wit boarding of consultar on approach, scoping	h partn nts, agr g, etc)	iers (on- eement	06.01.2020									
	Activities for prepara and operational plan submission Route ra process	ation of and it ationalis	service s sation	27.12.2020									
	Submission of final report and toolkit		on	25.02.2021									
	KSRTC implements recommendations pr plan	selecte ropose	ed d in the	15.04.20201									
OC2	State-wide workshop fo presenting findings from gender studies	r 1	pl	20.04.2021									
OC3	Campaign for use of public transport with COVID-19 situation												
	One-month online campaign		со	30.06.2020									
	Offline campaign- Po precautions to be tal promoting NMT for b	osters ken an Kochi c	on d ity	30.08.2020									
	Promote NMT as pro measure for COVID Cycles4Change Cha Kochi city	ecautio throug allenge	nary h in	15.02.2021									
OC3	Gender Studies - identification of issues and recommendations												
	Kick-off workshop with partners		со	06.01.2020									
	User perception survey		со	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 repor studies and submiss partners	t for ge sion to	ender the	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									
BHUE	BANESWAR/ ODISHA												
OB3	Technical assistance (TA) to BDA on LCMP development		on	31.03.21									
	Working Group and Co-ordination committee creation	С	со	31.12.18									
	Multi stakeholder meetings to steer LCMP development	С	on	31.12.20									
	Individual capacity building under various subject areas for LCMP	I	pl	31.03.21									
	Public campaign for the LCMP	С	со	31.12.19									
	Submission of mobility database to BDA for future projects and monitoring of the LCMP	0	pl	30.4.21									
OA1	TA for BDA on CDP development process		со	31.03.20									
	Expert lectures and workshop on creating Master Plans	I	со	31.12.19									
	Template and guidance for creation of future TORs by BDA	0	со	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	со	30.09.20									
OA1	TA to BSCL/BMC on pa policy design+managen plan	rking nent	on	31.12.20									
	Workshop- cum-training on case studies and lessons on parking for all key stakeholder agency representatives in Bhubaneswar	I	со	31.03.20									
	Series of technical trainings on policy+PAMP implementation	I	pl	31.12.20									
	Creation of working group on parking in Bhubaneswar	С	со	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,	0	со	31.12.19									
	Development of training curricula and calendar	0	со	31.12.19									
	Handholding on various topics related to bus operations	I	on	31.12.20									
	Development of orgnisational level guidance manual	0	со	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	0	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									
СОІМ	BATORE/ TAMIL NADU							1	1	1		1	
OB3	Technical assistance (T for development of an N Plan for Coimbatore	A) to C MT Ne	CMC etwork	31.03.20									
	Development of guidance documents to implement the plan	0	со	31.03.20									
	Individual capacity building of engineers on to apply and use the plan document	1	pl	31.03.20									
OA1	TA to CCMC for improve design/NMT at various	ed stre locatio	et ns	30.06.21									
	3 sensitisation workshops/ consultations for CCMC engineers	I	со	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	0	со	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	0	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)	Ο	со	02.02.20									
	Final draft plan and toolkit presented/shared	0	pl	30.06.21									
OC2	State-wide workshops		pl	30.06.21									
	State-wide workshop on NMT in ten selected Smart Cities	0	on	30.06.21									
	State-wide workshop on NMT network plans and complete streets	0	pl	30.06.21									
	State-wide workshop on bus route rationalisation and e-buses planning	0	pl	30.06.21									
OC3	Sustainable and gender friendly urban transport campaign		pl	30.06.21									
	Results documentation and submission to partners	0	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	0	pl	30.06.21									
OD2	State of Transport study		pl	30.06.21									
	Policy recommendations presented/submitted to partners	0	pl	30.06.21									
	Proposal for replication mechanism presented to partners	0	pl	30.06.21									
OD3	Data management		pl	30.06.21									
	Guidelines/ technical advisories submitted to partners	0	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



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:

- 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.
- 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.

- Costs for trainers was covered by SMART-SUT, while CRUT provided the venues for participants to tune into the online event
- 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	кмс	and
EJAD	CS, 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
- 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.)
- 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

	Source of verification	Letter of invitation from mayor Report of 2 trainings (ongoing) Approved MoM.	Letter from EJADCS (17.01.2020) MoM (30th January 12th February 5th March 8th May 2020) Email to EJADCS (25th May 2020) Training documentation
	Milestones (completed, ongoing, 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. 	 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.
	Concrete action for CD output	 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 conference 2019. Trainings and site visits for Mayor, councillors (planned). 	 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.
erview – Kochi/Kerala as on Sep 2020 ⁹	CD outputs (at city level)	 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. 	 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.
Table 16: M&E 0vi	CD Outcomes	Partners have increased technical, managerial and administrative capacities.	

⁹The 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.

Source of verification	Issued joint AFD MoM Gok (transport commissioner) has initiated the file.	Letter from EJADCS (17.01.2020) MoM (30th January March 8th May 2020) 2020)
Milestones (completed, ongoing, planned)	 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. 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. 	 Support request from partner and activity initiated. RFP formulated in discussion with partner. JD developed in consultation with partner. I new team member hired as per the proposed JD. Video concept finalised with partner and shooting completed. 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. Mentoring completed. Interest of shared eventors. Interest of shared autos. Interest of securing GO for operating shared by EJADCS. Manual is initiated of the EJADCS. Mentoring completed. Mentoring completed. Interest of shared eventos in Kochi. Impact evaluated.
Concrete action for CD output	 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. 	 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.
CD outputs (at city level)	 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. 	 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.
CD Outcomes	Improved organisational structure and performance	

Source of verification	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)		MoM (29 th July 2019) Mail from Principal Secretary.
Milestones (completed, ongoing, planned)	 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 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. WG established by KMC. 		 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.
Concrete action for CD output	 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 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. 		 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.
CD outputs (at city level)	 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 facilitated by SMART-SUT has been project and with EJADCS on e-auto project. Support to KMC in formation of UMTA in Kochi. 	omes	 Development of online toolkit which will help KSRTC officials in route rationalisation process for future actions. Supporting trainings to KSRTC officials in collicials 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.
CD Outcomes	Improved co-operation mechanisms	State level outco	Partners have increased technical, managerial and administrative capacities

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 (29 th 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 in Kochi. 	 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 (4 th Sept. 2020) Mail from MVD (8 th May 2020) Presentation, video and photos showcasing the activities the activities the activities the activities the activities

CD outputs (at city lev tcomes	 At least 10 CCMC engineering Department Engineering Department depth training on various because of which they s NMT components in all t projects based on appro conditions. Engineering Staff in CCM equipped to monitor road projects being undertake contractors and can leve available guidelines and subject. At least 2 CCMC engine to become trainers and r CCMC staff. CCMC staff participate ir live tactical urbanism eve the city.
(el)	eers from the t receive in- s aspects of NMT tart to include the future road priate street of and NMT an by consultants/ strage better, tools on this ers are trained mentors for the and learn from ents conducted in
Concrete action for CD output	 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.
Milestones(completed, ongoing, planned)	 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. INA 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. Results of survey compiled. Recommendations for institutional strengthening of CCMC w.r.t NMT projects submitted.
Source of verification	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).

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

Source of verification	MoM and media stories from launch of plan Letter/office memo NMT Network Plan document	MoM Webinar proceedings		MoM (21stfeb 2020) Mail from Principal Secretary
Milestones(completed, ongoing, planned)	 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. 	 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. 		 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.
Concrete action for CD output	 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. 	 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. 		 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.
CD outputs (at city level)	 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. 	 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. 	me	 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.
CD Outcomes	Improved organisational structure and performance.	Improved co-operation mechanisms.	State-level outco	Improvement on technical, managerial and administrative capacities of partners.

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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 (21ªfeb 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 (17 th 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 (17 th 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 (21ªfeb 2020 &17 th Dec 2020) mail from Transport Secretary

	, Source of verification		p documentation, documentation, Acknowledgement letter from GM (P&A), OB2 documentation, Group assignments from leadership mentoring program.	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.	ler. E-mail documentation, concept notes and reports submitted, MoM
	Milestone (completed, ongoing planned)		 Activity initiated from partner. Proposal for trainings and leadershid development submitted. Needs assessment and trainings conducted. Training reports completed. Staff identified and recruited. Staff trained. Impact evaluated. Staff absorbed by CRUT. 	 Activity initiated. Recommendations submitted. Recommendations accepted. Impact evaluated. 	 Request for review initiated by partn Multiple meetings conducted. Recommendations submitted. Action initiated. Formal or informal mechanism of communication is established.
	Concrete action for CD output		 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. 	 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. 	 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.
erview as on Sep 2020 – Bhubaneswar/Odisha	CD outputs (at city level)		 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. 	 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. 	 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.
Table 18: M&E 0v	CD Outcomes	CRUT	Improved individual competencies.	Improved organisational structure and performance.	Improved co-operation mechanisms.

Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT)

CD Outcomes	CD outputs (at city level)	Concrete action for CD output	Milestone (completed, ongoing, planned)	Source of verification
BDA, BSCL, BI	MC			
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. 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

Source of verification	Excel files	Email and report	MoU between GIZ, HUDD and BDA Office memo Report MoMs
Milestone (completed, ongoing, planned)	 Mobility data base created. Database submitted to agencies. 	 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. 	 LCMP development activity agreed with BDA. 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.
Concrete action for CD output	 Data collection in areas like land use, parking, road inventories, public transport ridership, etc. Through research and surveys. 	 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. 	 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.
CD outputs (at city level)	 BDA's (also BSCL, BMC's) database on mobility is strengthened through the research-based approaches adopted during the project. 	 BDA, BSCL improves further their existing SD guidelines to reflect more inclusive and local elements related to road users and space. 	 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.
CD Outcomes			Improved co-operation mechanisms

Source of verification	MoM, presentation Report, photographs, documentation, letter from BDA requesting civil society groups to participate. Presentation, documents, emails, press release.	MoM Letter
Milestone (completed, ongoing, planned)	 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. 	 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.
Concrete action for CD output	 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. 	 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.
CD outputs (at city level)	 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. 	 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.
CD Outcomes		

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 nongovernmental 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 decisionmakers 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 multimodal 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 (roro- 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 nonmotorised 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 nonprofit 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 subsystems 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 Gesellschafl 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.