MODULE 1 **SPOTLIGHT 5**

AUTHORS: Armin Wagner and Viviane Weinmann, *GIZ*

Capacity and Institutional Support to Achieve Sustainable, Low Carbon Transport

The demand for both passenger and freight transport continues to grow, driven by global and regional integration and urbanisation. Capacity development plays a critical role in addressing the many challenges facing the transport sector, from ensuring integrated planning to fostering inclusive and equitable human development in harmony with nature. However, to achieve meaningful and lasting impact, it is imperative to better understand the strengths and weaknesses of existing capacity development programmes, identify gaps and tailor interventions to meet the evolving needs of transport professionals, city authorities and other stakeholders.

SLOCAT Partnership on Sustainable, Low Carbon Transport

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Note: This spotlight explores the state of play of capacity development programmes in the transport sector. We invite feedback, advice and suggestions from practitioners, policy makers, researchers and all those invested in advancing capacity development in the sector. We also encourage international engagement and collaboration to foster knowledge sharing, best practices and the exchange of experiences across different regions and contexts.

Contexts and Challenges

Urban sprawl

A study by the International Transport Forum shows that despite global uncertainties, the world's urban population is expected to grow more than 40% by 2050, while urban passenger travel demand will almost double. Without sound regulatory frameworks, this will lead to significant urban sprawl.[1]

Investment gaps

As a result of the high growth in demand for passenger and freight transport, there are significant investment needs that can only be partially met. If investments do occur, they are often made in unsustainable infrastructure, with a road-centric focus that disregards integrated approaches to sustainable transport and mobility. Moreover, public administrations are frequently unable to adequately plan urban development (and with it urban transport), in particular using long-term perspectives.

City planning and management

According to the World Cities Report 2022, cities are facing a decrease in the share of planned areas **(see Figure 1)**.[2] Without sound planning and management capacities, urban areas are unable to achieve compact integrated and connected development.[3]

Administrative and institutional capacities

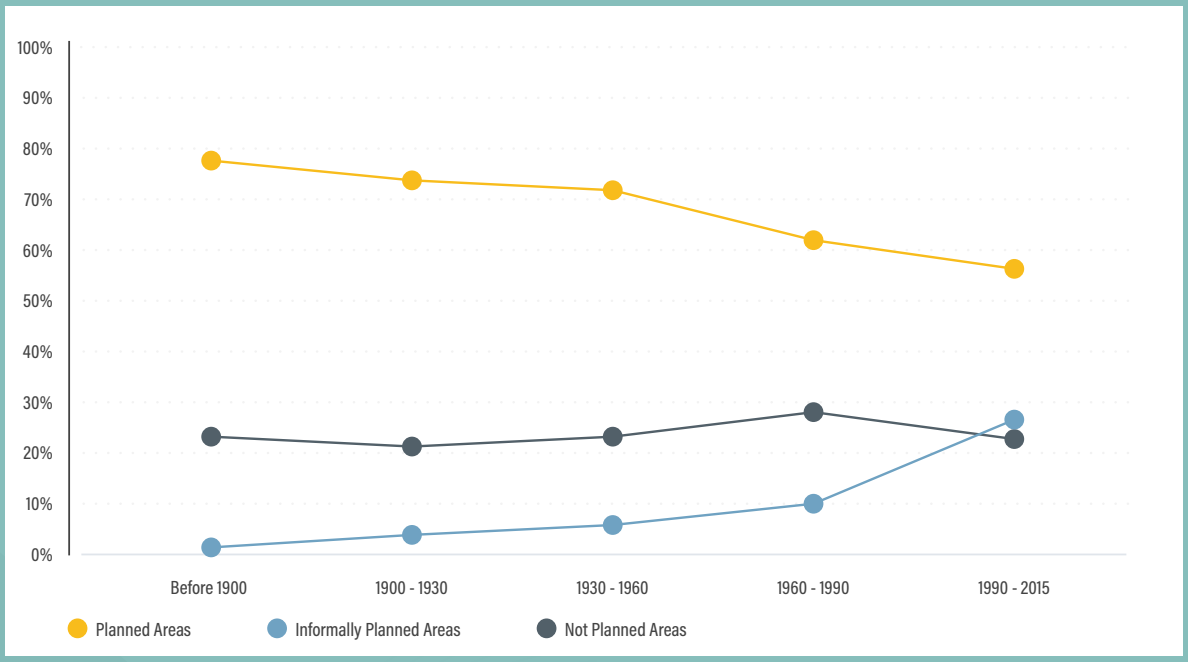
In addition to conflicting political directives or lack of investments at scale, deficiencies in administrative structures and limitations in personnel and institutional capacities are essential and frequent challenges that hinder integrated transport and mobility planning efforts.

Expectations for capacity building needs:

- **At the individual level**, transport experts are required to possess not only technical and economic skills but also abilities in areas such as reform support, negotiation management and financing to solve everyday transport issues while ensuring long-term sustainable mobility. The concept of lifelong learning is already being actively embraced, particularly in dynamic fields such as mobility, where innovation cycles are becoming shorter.
- **At the city level**, urban areas must manage the financing of transport infrastructure, establish reliable governance structures and consider a broad spectrum of environmental and societal requirements.
- **At the state level**, governments – particularly finance, transport, planning, and local self-government ministries – have the responsibility to establish appropriate regulatory frameworks for sustainable urban mobility.

FIGURE 1. Share of cities with planned areas, pre-1900 to 2015

Source: See endnote 2 for this section.



A stocktake on capacity development needs shows that only very limited, often sporadic information is available on the concrete needs for enhancing professional skills and strengthening institutions. There is no known regional or international quantified stocktaking.

As a first step, action is needed to conduct a comprehensive stocktake on capacity development in the transport sector, addressing the requirements and challenges facing transport experts, cities, states and the global community. This assessment should involve evaluating current training programmes, identifying gaps, sharing best practices and fostering international co-operation to accelerate the implementation of sustainable transport concepts worldwide.

Scale of challenge

Around 57% of the global population lived in urban areas in 2022.[4] By mid-century, the urban population is expected to near 68%, much of it in low- and middle-income countries.[5] The 20 largest cities in the fastest-growing nations – India, Nigeria, Pakistan, Ethiopia, Tanzania, Indonesia, Egypt and Congo – had an estimated combined population of 250 million people in 2018, which is projected to exceed 650 million by 2050.[6]

If we assume that 100 skilled personnel are needed to manage and plan urban mobility in cities with a population of under 1 million, and that 250 such personnel are required for cities with more than 1 million people, then around 25,000 skilled individuals would be required just for 160 cities. Considering the projected population increase, this number would increase to around 33,100 skilled personnel by 2050. The estimate does not account for the high turnover rate in public administration jobs or for the increasing complexity of these tasks in the future.

Since this calculation covers only less than 10% of the total urban population in low- and middle-income countries, a target number of at least 250,000 skilled staff across these countries would be a reasonable initial estimate. Notably, these figures do not account for the significant needs at the national and local levels for skilled planners in non-urban transport planning or in related areas such as urban planning and land management.

To refine the above calculations and provide a solid basis for decision making, the following questions need to be thoroughly assessed:

- How do the staffing requirements for urban mobility management differ based on city size and population?
- What are the potential consequences of not accounting for the high turnover rate in public administration jobs, and for the increasing complexity of urban mobility planning tasks in the future?
- What strategies can be implemented to attract and retain skilled personnel in urban mobility management positions?
- How does the estimated number of skilled personnel required for managing urban mobility in low- and middle-income countries compare to the current availability of such professionals?
- What are the potential impacts of a shortage of skilled staff in urban mobility management on the quality of urban infrastructure and services?
- How can the estimate of 250,000 skilled urban mobility planners across low- and middle-income countries be validated and refined based on the specific needs and characteristics of different cities and regions?

Approaches for capacity development

Various forms of capacity development are available in the transport sector. These vary by target group, size, methods, and content, reflecting the diversity of approaches used to enhance skills, knowledge and expertise in the field (see Table 1). By examining different methods such as webinars, e-learning, expert training, and on-the-job training, stakeholders can identify appropriate strategies to meet their specific capacity development needs (see Table 2). Gaining a better understanding of the range of approaches can lead to informed decision making and facilitate the adoption of effective capacity development practices in the transport sector.

What evidence exists regarding the impact and effectiveness of each form of capacity development mentioned above? The following questions include some of the aspects that must be thoroughly considered to get to such assessment:

- Are there any studies or evaluations that provide insights into the scalability and replicability of these capacity development approaches?

TABLE 1. Overview of different forms of capacity development in the transport sector

Form/Type of capacity development	Target group	Size	Methods	Content
Webinar	Transport experts, city officials, stakeholders	Variable	Online presentations, interactive discussions	Introduction to specific topics, knowledge sharing, case studies
E-learning	Transport professionals, city authorities, technicians	Variable	Online courses, modules, quizzes	Technical skills, policy frameworks, best practices
Dive-in training	City planners, engineers, project managers	Small to medium groups	On-site visits, field exercises, workshops	Hands-on experience, project-specific skills, problem solving
Expert training	Transport professionals, policy makers, government officials	Small to medium groups	Workshops, seminars, expert-led sessions	In-depth knowledge, policy development, strategic planning
On-the-job training	Transport operators, technicians, new hires	Individual or small groups	Mentoring, shadowing, hands-on practice	Practical skills, operational procedures, safety protocols
Formal education	Students, aspiring professionals	Large groups	Classroom lectures, coursework, examinations	Theoretical knowledge, technical skills, research methods

TABLE 2. Capacity needs and impacts of different stakeholders

Stakeholders	Needs	Impact
Political decision makers/ management in city administrations/transport companies – alignment of initiatives, programmes and projects towards sustainable mobility/e-mobility	■ Planning of initiatives, programmes and projects towards sustainable mobility/e-mobility ■ Initiation of reform steps ■ Innovation	■ Active on-the-job training/mentoring ■ Long-term: sustainable mobility in academic curricula and/or links to government career programmes
Employees in city/regional administrations in transport departments, etc.	■ Planning and implementation of projects in the field of sustainable mobility (infrastructure/ vehicles)	■ (Academic) training ■ Further education through training ■ On-the-job training
Employees in transport companies (bus drivers, mechanics, electronics technicians, etc.)	■ Education and training for the operation of sustainable infrastructure and (electric) vehicles	■ Training (dual vocational education and training) ■ Continuing education ■ On-the-job training

- How can we measure and assess the long-term impact of different capacity development methods on the skills, knowledge and performance of individuals and organisations?
- What are the potential barriers and challenges in scaling up these capacity development approaches across different contexts and regions?
- Have there been any successful examples of scaling up specific forms of capacity development? If so, what were the key factors that contributed to their scalability?
- What strategies and resources are needed to expand the reach and impact of webinars, e-learning and other technology-enabled capacity development methods?
- How can we ensure that expert training and on-the-job training programmes are accessible to a larger number of participants without compromising the quality of learning?
- What collaborative efforts and partnerships can be established to promote the scaling up of effective capacity development models, such as sharing best practices and lessons learned?
- How can data-driven approaches, including monitoring and evaluation, help inform the scaling up of capacity development initiatives in the transport sector?
- Are there specific policies, funding mechanisms or regulatory frameworks that need to be in place to support the scaling up of different forms of capacity development?
- What capacity development programmes and initiatives are in place at the individual, city, state and global levels?
- How effective have these programmes been in addressing the skills and knowledge gaps in the transport sector?
- What are the strengths and weaknesses of the existing capacity development initiatives?
- Are there any gaps or areas that require further attention?

In recent years, the global transport community has built up a substantial range of capacity developments offers. The following is a non-exhaustive list of example efforts and offerings funded by Germany's Agency for International Cooperation (GIZ):

- The **Leaders in Urban Transport Planning (LUTP)** programme empowers policy makers with the skills needed to identify, prepare and implement holistic strategies that address complex urban transport challenges.[7]
- The **Master 2 en Transport et Mobilité Durable dans les Villes Africaines programme** – created in 2014 by CODATU, Senghor University, the African School of Architecture and Urban Planning (EAMAU) and the National Conservatory of Arts and Crafts of Paris (CNAM) – supports the development professional sectors in the field of transport and urban mobility and contributes to the strengthening of expertise in African countries.[8]
- To scale and facilitate the capacity building process, **MobiliseYourCity** developed a full catalogue of training materials, summarising the most important knowledge on Sustainable Urban Mobility Planning.[9]

- The **Transformative Urban Mobility Initiative (TUMI)** is the leading global implementation initiative on sustainable mobility, formed through the union of 11 globally recognised partners. The TUMI Training Catalogue offers a range of tailor-made sessions to dive deep into the topic of accessibility in public transport modes (e.g., cycling, electric buses, gender, leadership, planning).[10]
- The e-learning course **Transforming Urban Mobility: Introduction to Transport Planning for Sustainable Cities** covers the different dimensions of sustainable urban mobility, including the "Avoid-Shift-Improve" framework, which strives to achieve significant reductions in greenhouse gas emissions, energy consumption, and congestion, with the ultimate objective of creating more liveable cities (see Table 3).[11]

Further questions for consideration:

- What capacity development programmes and initiatives are in place at the individual, city, state and global levels?
- How effective have these programmes been in addressing the skills and knowledge gaps in the transport sector?
- What are the strengths and weaknesses of the existing capacity development initiatives?
- Are there any gaps or areas that require further attention?

TABLE 3. List of e-learning courses of Transforming Urban Mobility: Introduction to Transport Planning for Sustainable Cities

Thematic field	Country	Target group	Contact	Web link
Transforming Urban Mobility: Introduction to Transport Planning for Sustainable Cities	Global	All stakeholders / Online	TUMI	https://www.futurelearn.com/courses/introducing-sustainable-urban-mobility
Transforming Urban Mobility: Components of Transport Planning for Sustainable Cities	Global	All stakeholders / Online	TUMI	https://www.futurelearn.com/courses/components-of-sustainable-urban-mobility
Achieving Transitions to Zero Carbon Emissions and Sustainable Urban Mobility	Global	All stakeholders / Online	Funded by EIT Implemented by UCL, TUMI, ICLEI	https://www.futurelearn.com/courses/achieving-zero-carbon-sustainable-urban-mobility
MRV – Emission Monitoring, Reporting & Verification (MRV)	Global	All stakeholders / Online	TraCs	Launch planned for 2023
Gender & Inclusive Mobility Course 1	Global	All stakeholders / Online	WMW (by TUMI)	Launch planned for 2023
Gender & Inclusive Mobility Course 2	Global	Advanced experts / Online	WMW (by TUMI)	Launch planned for 2023
Digitisation, E-Mobility	Global	All stakeholders / Public Transit Agencies / Operators	TUMI E-Bus Mission	https://www.mobility-academy.eu/enrol

Better data and capacity development

Data on capacity development in all its dimensions are crucial for effective planning, implementation and evaluation of interventions in the transport sector. Collecting and analysing relevant data can provide valuable insights into the effectiveness, impact and gaps in capacity development efforts. A comprehensive overview is lacking on the current offers, as well as on demand, quality of staff and institutions, etc. To fully assess the state of capacity development, the following data could be needed:

- **Demographic data:** Information on the target audience, such as transport experts, city officials, and stakeholders, including their profiles, qualifications and areas of expertise (capacity needs assessment).
- **Skill assessment data:** Assessments or evaluations of the skills and knowledge levels of participants before and after the capacity development programmes to measure the impact and effectiveness of the interventions.
- **Resource allocation data:** Data on the financial resources allocated to capacity development initiatives, including budgetary allocations for training programmes, infrastructure development and support systems like mentorship or coaching.
- **Stakeholder engagement data:** Information on the level of engagement and collaboration with stakeholders – such as transport agencies, academic institutions, private sector entities and civil society organisations – to understand the extent of partnerships and knowledge sharing.
- **Monitoring and evaluation data:** Data collected during the monitoring and evaluation process, including feedback from participants, surveys, and qualitative or quantitative assessments of program outcomes and impacts.
- **Performance data:** Data on the performance of trained individuals or teams, such as project outputs, achievements and improvements in their respective roles within the transport sector.
- **Sustainability data:** Data on the long-term effects and sustainability of capacity development efforts, including the retention of trained professionals, the integration of new skills and practices into policies or processes, and the establishment of knowledge sharing networks.
- **Training data:** Data related to the various forms of capacity development, including the number of participants, duration of training and types of training methods employed (e.g., webinars, e-learning, on-the-job training).

Collecting and analysing these types of data can provide valuable insights into the strengths and weaknesses of capacity development initiatives, facilitate evidence-based decision making, inform resource allocation and support continuous improvement in the field of transport capacity development. This should also reflect the current and potential role of national governments and institutions as well as international partners.

To institutionalise data collection and facilitate the provision of information, the establishment of a global transport and capacity development observatory (or similar format) could be encouraged. This should bring together stakeholders both from the transport arena and from education and skills backgrounds. Further, there is a need to better understand the financial implications (costs and benefits) of enhanced training and education in the field of transport.

Sustainability of capacity development efforts

Ensuring the sustainability of capacity development efforts requires continuously integrating the sustainability approach into global efforts for capacity development. To achieve lasting engagement from participants, simple measures such as establishing an alumni network and setting up a helpdesk should be implemented on the local, regional and international levels. Such resources enable participants to continue benefiting from ongoing communication and support even after completing the training.

To incorporate additional knowledge partners in the long run, a franchise-like approach with quality-assured individual products can be considered. By forming strategic partnerships, collaborating with experts in specific domains, and leveraging their knowledge, the training efforts can expand and address a wider range of topics.

Additional questions based on the given items include:

- How can we ensure the long-term sustainability of international capacity development approaches?
- What measures can be taken to continuously monitor and ensure the quality of the covered topics?
- What strategies can be implemented to foster lasting engagement and involvement from participants, such as alumni networks or helpdesk services?
- How can we effectively support participants and international partners in applying the knowledge gained during the training in real-life situations?

- What approaches can be adopted to involve additional knowledge partners and expand the training offerings while maintaining quality assurance?
- How can we develop sustainable approaches to finance training and education in the field of transport?

With a broader perspective, we should continue analysing the role of international co-operation and knowledge exchange:

- How are countries and cities collaborating and sharing knowledge in the field of sustainable transport?
- What mechanisms are in place for international co-operation and knowledge exchange, within and beyond the activities related to official development assistance?
- How can existing networks and platforms be strengthened or expanded to facilitate knowledge sharing and collaboration?

Way forward

To really make a difference in the area of capacity development for transport and mobility, a comprehensive approach is needed that ambitiously drives the transformation of transport and mobility systems worldwide. Concerted action is required that 1) develops new narratives, 2) penetrates the identified areas of public administration management, and 3) initiates the corresponding transformation course. Action areas comprise the following:

Standards and guidelines:

- Renew all construction standards, guidelines, related documents, etc. in the next 10 years and align them with the topics of climate and sustainable development (i.e., international promotion of "comprehensive renewal").
- Identify the best standards and regulations worldwide, extract the technical core and make it available internationally, and introduce it into dialogue formats.
- Ensure accessibility to sustainable infrastructure for populations, and set targets to build implementation capacity.

Professional associations:

- Provide broad support for (new) professional associations in the transport sector that meet ambitious objectives.
- Create wider impact through connection to neighbouring fields such as urban development, etc.
- Link to career development.

Education (among others):

- Modernise the curricula, teaching materials and supporting materials and underpin them with comprehensive audiovisual communication.
- Create and expand sustainability clusters (bubbles) and penetrate and transform existing bubbles (architects, investors).
- Use existing social platforms to democratise education, through the creation of bottom-up content (memes, infographics, local examples).
- Use a data point system similar to that used by architects and link it to the career process.

Together, it is possible to work towards enhancing the effectiveness and impact of capacity development efforts for more inclusive, sustainable, and efficient transport and mobility systems.

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1 International Transport Forum (ITF) (2023), "How Improving Public Transport and Shared Mobility Can Reduce Urban Passenger Carbon Emissions: Scenario Results and Policy Findings", https://www.itf-oecd.org/sites/default/files/docs/reducing-urban-passenger-carbon-emissions.pdf, accessed 10 August 2023.

2 **Figure 1** from UN-Habitat (2020), "World Cities Report 2020: The Value of Sustainable Urbanization", https://unhabitat.org/world-cities-report-2020-the-value-of-sustainable-urbanization.

3 Ibid.

4 World Bank Data (2023), "Urban population (% of total population)", https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS, accessed 25 August 2023.

5 United Nations Department of Economic and Social Affairs (UNDESA) (2023), "68% of the world population projected to live in urban areas by 2050, says UN", https://www.un.org/uk/desa/68-world-population-projected-live-urban-areas-2050-says-un, accessed 8 August 2023.

6 UNDESA (2019), "World Population Prospects 2019: Highlights", https://www.un.org/development/desa/pd/sites/www.un.org.development.desa.pd/files/undesa_pd_kf_wpp2019_10keyfindings.pdf.

7 World Bank (2023), "Leaders in urban transport planning (LUTP)", https://www.worldbank.org/en/programs/leaders-in-urban-transport-planning-program, accessed 10 August 2023.

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9 MobiliseYourCity (2022), "Introducing MobiliseYourCity's Training Catalogue", 9 December, https://www.mobiliseyourcity.net/introducing-mobiliseyourcitys-training-catalogue.

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