

A 250K GAP?

BUILDING CAPACITY FOR THE GLOBAL MOBILITY TRANSITION

SCALING CAPACITY AND EDUCATION TO
ACHIEVE SUSTAINABLE MOBILITY FOR ALL



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Abbreviations

ACT	Action towards Climate-friendly Transport-Initiative
CBIT	Capacity Building Initiative on Transparency
COP26	The 26th session of the Conference of the Parties to the UNFCCC
ITF	International Transport Forum
IUT	Institute of Urban Transport
MDB	Multilateral Development Banks
NUA	New Urban Agenda
OECD	Organization for Economic Co-operation and Development
PCCB	Paris Committee on Capacity Building
SDGs	Sustainable Development Goals
SLoCaT	Partnership for Sustainable, Low Carbon Transport
SUM4ALL	Sustainable Urban Mobility for All
TUMI	Transformative Urban Mobility Initiative
TVET	Technical and Vocational Education and Training
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNFCCC	United Nations Framework Convention on Climate Change
UNHABITAT	United Nations Human Settlements Program
UNSTATS	United Nations Statistical Division
US	United States
VNR	Voluntary National Reports
WEF	World Economic Forum
WHO	World Health Organization

Introduction

"In Ghana we are committed to progress towards sustainable transport. However, only in eight of our 256 municipalities, we currently have a Transport Lead in the local government." (Governmental Official, Ghana)

The **urgent need for transformative action towards sustainable mobility** for all on a local, national and global level is well known, but there is a lack of implementation. There are many reasons to change the transport system from business as usual and to achieve sustainable development; moving from a car-oriented approach to a people centered-approach will provide many benefits: freeing valuable space in expanding and congested cities; reducing fatalities and enabling alternatives to moving alone by car; reducing air pollution and carbon emissions; and increasing accessibility to social infrastructure and economic opportunities for all members of society, to name a few.

Over the past decade, many more experts and decision-makers have understood which actions to take. However, widespread political will and their capacity to implement change are still lacking and inconsistent. Institutional arrangements are insufficient to set approaches of transformative mobility into motion. With many of the technical as well as policy options well known, **there remains a fundamental gap in localizing and implementing those actions**. This gap is often caused by a lack of human resources, with limited local expertise and an insufficient number of local staff and departmental capacity. In addition, not enough staff are trained or have experience in how to implement sustainable mobility solutions professionally. These issues are all strongly related to a key pillar of enabling change towards sustainable mobility: capacity building¹.

Capacity building is well referenced in international resolutions and there is a general agreement on the importance of strengthening knowledge and increasing the number of staff for sustainable development. However, neither current needs for capacity building nor education are assessed on a qualitative or quantitative level, neither in general nor for specific industry sectors. **Interestingly, as this White Paper will demonstrate, no assessment has taken into account the aspect of capacity development for the sustainable transport sector specifically**. With large social and technological changes under way, the assumption is that this need is insufficiently being paid attention to. What kind of capacity, and how much thereof, is needed by public, private, and non-profit sectors for operating and transforming mobility systems, and what capacity is currently built?

In addition, we lack the understanding of how demand for capacity development in sustainable mobility is met by national education systems, as well as by international programs and professional development activities from multilateral development banks and aid organizations. Improving our understanding of capacity development for sustainable mobility notwithstanding seems paramount given the scope and goals of the activities of these organizations.

¹ There is an ongoing discussion in international development on the terms of capacity building and capacity development. This paper for reasons of simplification uses both terms interchangeably, although differences might exist in detail. See also section 2.1. for further detail.

This paper identifies the future capacity building needs and initiates the reflection on how improvements in education and capacity building programs can meet the future demand to enable a pathway towards sustainable mobility for all. As this document is intended as a pre-study, its main objective is to raise awareness of the current knowledge gap to enable the design of efficient and targeted education and capacity building programs. **With this initial think piece, the Transformative Urban Mobility Initiative (TUMI) aims to start a dialogue on how to better assess and address the future needs for capacity building and how involved actors can move towards better coordinated global action.**

At the same time, it is important to highlight that one core objective for all stakeholders working in the field of sustainable mobility should be to create institutional and political conditions to have sufficient capacity on the ground.

After this introduction, chapter 2 will describe how capacity building is anchored in international agreements. Chapter 3 will try to define the capacity building gap focusing on urban mobility. Chapter 4 raises the question whether current education is sufficient in terms of numbers as well as in terms of content: How many people currently qualify annually with a university degree to work on sustainable mobility and how many curricula meet the current state of knowledge in the sector?

Finally, initial action areas outline the cornerstones of a future strategy for capacity building to enable sustainable mobility for all. As the main objective of this paper is to **initiate a discussion on the gap between current capacity building and future demands**, most of the reflections are not discussed in depth and warrant further research as well as increased action on the ground.

#1

1 Role of capacity building in the context of development cooperation

Capacity building is one the key factors needed for a country to progress in its development.² Capacity development “refers to a process through which people, organizations, and societies as a whole unleash, strengthen, create, adapt, and maintain capacity over time and continuously realign it with changing conditions” (Bialluch, 2013). Capacity building is part of many institutional strategies as well as implementation activities related to sustainable mobility. While this section looks at the international

² As one of the eight Millennium Development Goals (MDGs) from 2000 to 2015, education had got a lot attention from low income country governments as well as the international aid community. Substantial progress had been made to improve primary education in the last decade. However, secondary education and capacity building are key elements where more attention is needed from local and national government. This is partially reflected in the Sustainable Development Goals 4: *Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*, which adds more emphasis on secondary as well as technical and vocational education and training (TVET).

processes and agreements in place to foster capacity building, ultimately for the task it is up to governments to provide high quality education. With regards to sustainable mobility, this means that local and national governments as well as universities must ensure, that they have the right educational and institutional systems in place to plan, construct, maintain and operate their transport systems adequately. Role of international cooperation is to provide the adequate support to enable local stakeholders to implement and strengthen their institutions.

As this chapter will show, capacity building has a ubiquitous presence in international agreements. Furthermore, national and multilateral development agencies often consider capacity building as either an integral part of infrastructure investments or as a separate part of their program activities. Given the official recognition and relevance attributed to capacity building in the activities of these agencies, it is hard to understand why there is a severe lack of theoretical foundation and research in the field as a whole and particularly in the transport sector.

1.1 Definitions of capacity: distinguishing capacity building and capacity development

The challenge begins with a lack of consensus about the operational definition of capacity building and the results that can be expected from capacity building efforts. Most official definitions of capacity and capacity development are very broad. This lack of clarity makes it extremely difficult to evaluate the outcome of such work and to understand its impact. For example, this was highlighted in an independent review by the Operations Evaluation Department of the World Bank on their capacity building activities in Africa (Elmendorf, Jensen, & Pisani, 2005).

In this paper, capacity is understood as “the ability of people, organizations and society as a whole to manage their affairs successfully” (Agapitova, Behrens, & Otoo, 2006). The definition is deliberately simple. It avoids any judgement on the objectives that people choose to pursue, or what should count as success in the management of their collective efforts (Pearson, 2011). For future work, it might be helpful to reflect on more specific definitions in the context of sustainable mobility.

Very often, international organizations like UNHABITAT and the OECD distinguish between capacity building and capacity development. While according to UNHABITAT, capacity building implies creating something from where there was nothing - acknowledging no pre-existing capacity-, capacity development implies identifying existing capacities and further expanding them. For the purpose of this paper, both terms are used as its seen as most important to contextualize capacity in a local context (Hasselqvist & Thomas, 2012).

box 1: Previous assessments and processes on capacity building in international development

The World Bank Institute concluded in their 2006 publication, the Capacity Development Results Framework (Agapitova, Behrens, & Otoo, 2006), that “approaches to capacity development are many, and most are characterized by vague and inconsistent concepts and lack of a common terminology”. This would result in “the links between outcomes of capacity development efforts and development goals [being] poorly articulated”. In addition, both preparation and evaluation of capacity development activities would lack “rigorous needs assessments and do not include appropriate sequencing of measures aimed at institutional or organizational change and individual skill building” (Agapitova, Behrens, & Otoo, 2006).

In response to tackling the described challenges, new international processes were initiated to progress towards a better common understanding and coordinated action. For example, the **Paris Declaration on Aid Effectiveness**, signed by more than 100 multilateral and bilateral donors and developing countries in 2005, stated that the “capacity to plan, manage, implement, and account for results [...] is critical for achieving development objectives.” (Article 22) (OECD, 2005/2008). As part of the declaration, donors committed to “align their analytic and financial support with partners’ capacity development objectives and strategies, make effective use of existing capacities and harmonize support for capacity development accordingly (Indicator 4).”

In the aftermath of the Paris Declaration on Aid Effectiveness, several documents (e.g. (OECD, 2005/2008), (Pearson, 2011)) provided more specific frameworks and described the need for a more holistic approach. While follow-up meetings by the member countries and monitoring reports to the Paris Declaration acknowledged some progress in the field of the aid coordination, the 2012 OECD progress report recognized that there had been limited action taken on the declaration to support the developing countries meeting their targets (Pearson, 2011). To achieve progress with the implementation of the declaration, the member countries created a new institution (the Global Partnership for Aid Effectiveness) during their annual meeting in Busan, South Korea in 2011.

The new partnership was created to continue the coordination of aid support and management among donor countries and to support countries in their efforts to create institutions and processes increasing their local capacity. Since 2015, they have widened their membership to a broad range of stakeholders, including civil society, in their efforts to meet the SDGs by providing guidance documents and created a monitoring framework. In the Global Partnership for Aid Effectiveness review the need to increase support was highlighted: “It comprises a set of indicators tracking international commitments to enhance country ownership of development efforts, focus on results, inclusiveness of development partnerships, and transparency and accountability.” (OECD, 2011).

While most of the focus on capacity building so far has been on a national level, UNHABITAT brought more international attention to the local level with its 2012 report. It concluded that while enormous efforts on capacity building through formalized approaches cannot guarantee consistent positive impact at the level of whole city systems or the institutional environment (i.e. enabling policy and legislation), it can contribute to creating more sustainable cities (Hasselqvist & Thomas, 2012).

While there is continuous attention to the importance of capacity building and the aim to create better global coordination, the work of the international community as well as UN organizations stays on a generic level. In doing so, publications and evaluations often do not look into specific sectors like transport, energy or agriculture. This initial desktop research suggests that there is no established link from capacity building to the transport sector. Only few documents refer to capacity building in mobility-specific policy documents (one notable example being the (UN Secretary-General's High-Level Advisory Group on Sustainable Transport, 2016).

1.2 Foundation of capacity building in international agreements

Over the last years, there has been increased attention to address the global challenges through multilateral agreements: the Paris Agreement in 2015; the 2030 Agenda for Sustainable Development with its 17 Sustainable Development Goals (SDGs) in New York in 2016; and the New Urban Agenda in Quito in 2016. National governments agreed to take action on climate change and sustainable (urban) development. All agreements highlight the importance of capacity development to achieve the international development objectives. New mechanisms and actions had been created under each agreement, which will be briefly described. There was a lot of attention to raise the importance of transport in the SDGs, though no specific goal related to transport was adopted. Furthermore, it is not always clear how the agreed goals will be implemented.

1.2.1 Paris Agreement

Capacity building is mentioned in several parts of the Paris Agreement (particularly Articles 11 and 12). The decisions to establish the Paris Committee on Capacity Building (PCCB) to support Articles 11 and Article 12 of the Paris Agreement (UNFCCC, 2015), stipulating the promotion of education, training and public awareness, as well as to establish the Capacity Building Initiative on Transparency (CBIT) under Article 13, can be regarded as foundational for all other institutions, mechanisms and processes addressing climate action under the Agreement.

box 2: Paris Agreement: Article 11 and 12 (UNFCCC, 2015)

Article 11

1. Capacity-building under this Agreement should enhance the capacity and ability of developing country Parties, in particular countries with the least capacity, such as the least developed countries, and those that are particularly vulnerable to the adverse effects of climate change, such as small island developing States, to take effective climate change action, including, inter alia, to implement adaptation and mitigation actions, and should facilitate technology development, dissemination and deployment, access to climate finance, relevant aspects of education, training and public awareness, and the transparent, timely and accurate communication of information.

2. Capacity-building should be country-driven, based on and responsive to national needs, and foster country ownership of Parties, in particular, for developing country Parties, including at the national, subnational and local levels. Capacity-building should be guided by lessons learned, including those from capacity-building activities under the Convention, and should be an effective, iterative process that is participatory, cross-cutting and gender-responsive.

3. All Parties should cooperate to enhance the capacity of developing country Parties to implement this Agreement. Developed country Parties should enhance support for capacity-building actions in developing country Parties.

4. All Parties enhancing the capacity of developing country Parties to implement this Agreement, including through regional, bilateral and multilateral approaches, shall regularly communicate on these actions or measures on capacity-building. Developing country Parties should regularly communicate progress made on implementing capacity-building plans, policies, actions or measures to implement this Agreement.

5. Capacity-building activities shall be enhanced through appropriate institutional arrangements to support the implementation of this Agreement, including the appropriate institutional arrangements established under the Convention that serve this Agreement. The Conference of the Parties serving as the meeting of the Parties to this Agreement shall, at its first session, consider and adopt a decision on the initial institutional arrangements for capacity-building.

Article 12

Parties shall cooperate in taking measures, as appropriate, to enhance climate change education, training, public awareness, public participation and public access to information, recognizing the importance of these steps with respect to enhancing actions under this Agreement.

Capacity building is seen as a crucial enabler for the reduction of greenhouse gas emissions and adapting to its increasing impacts. Despite the initial efforts and being crucial, building capacity for climate action in the transport sector seems to get not much attention or recognition in the post-Paris process when it comes to international negotiations. The latest United Nations Framework Convention on Climate Change (UNFCCC. Subsidiary Body for Implementation (SBI), 2018) from June 2019, highlights the focus on the implementation of Nationally Determined Contributions (NDCs), with many communicated NDCs based in the transport sector (SLoCaT, 2015).

1.2.2 2030 Agenda: Sustainable Development Goals

Capacity building (see [box 3](#): SDG 17.9 Capacity Building) is determined as subitem of SDG 17. It is measured by Dollar value of financial and technical assistance (including through North-South, South-South and triangular cooperation) committed to developing countries (UNFCCC. Subsidiary Body for Implementation (SBI), 2018). Current reporting by the countries does not pay sufficient attention to the activities on capacity building. There is no specific attention to sector-specific action.

box 3: SDG 17.9 Capacity Building

Enhance international support for implementing effective and targeted capacity-building in developing countries to support national plans to implement all the sustainable development goals, including through North-South, South-South and triangular cooperation.

1.2.3 New Urban Agenda

The New Urban Agenda (NUA) was adopted by the 3rd global UN conference on cities (Habitat III) in Quito in 2016 hosted by UNHABITAT. It represents a shared vision of the sustainable future of cities. While the Paris Agreement and the SDGs and use the term capacity building, NUA highlights the need for capacity development in Article 81 (see [box 4](#): New Urban Agenda: Article 81). While the follow-up is closely aligned with the SDG 11.2 on cities and there are several measures mentioned, there is no dedicated program assigned to capacity development (UNHABITAT, 2016).

box 4: New Urban Agenda: Article 81

We recognize that the realization of the transformative commitments set out in the New Urban Agenda will require enabling policy frameworks at the national, subnational and local levels, integrated by participatory planning and management of urban spatial development and effective means of implementation, complemented by international cooperation as well as efforts in **capacity development**, including the sharing of best practices, policies and programmes among Governments at all levels.

1.2.4 National transport capacity development of China

While the survey of important multilateral and international processes does not reveal an approach to building capacity in the transport sector, a curious example of national policy strategy from China does. Here, the need to develop a workforce with expertise and leadership skills are clearly mentioned to react to anticipated industry needs and conditions of integrated mobility systems.

box 5: China's capacity development strategy as outlined in "Outline for Building China's Strength in Transport"

(Ibold & Jingzhu, 2019)

8. Fostering the cultivation of innovative workforce and talents

8.1. Cultivating high-level transport technology talents

- Adhering to the guidance of high-quality, top-notch, and urgently needed training strategic, scientific and technological talents, scientific and technological leaders, young scientific and technological talents and innovative teams on international level, cultivating innovative talents in transport, and supporting talents from all fields to enter the transport-related industries,
- Promoting the construction of high-end think tanks for transport and improving the expert work system.

8.2. Educating highly qualified labour force in the transport sector

- Promoting the spirit of the model workers and the spirit of artisans, and creating a high-quality knowledge, skill, and innovation-based labour force,
- Cultivating transport technology and technical oriented talents to support China's manufacturing and building a modern vocational education system that meets the needs of transport industry and development.

8.3. Building a team of high-quality professional transport cadres

- Implementing the requirements for building a team of highly qualified and professional cadres, and building a team of high-quality loyal cadres,
- Focusing on professional ability training, and enhancing the ability of cadres to adapt to the requirements of modern integrated transport development,
- Strengthening the development of outstanding young cadres and strengthening the development of international transport organizations.

1.3 Findings and Recommendations

As this initial look into the role of capacity building in the international policy arena shows, the transport sector is not fully represented in international agreements and multilateral initiatives to promote capacity development. Overall, sectoral implementation initiatives seem to be absent in the surveyed processes.

However, there might be opportunities for scaling existing and future initiatives on capacity building and education in those policy arenas. The following recommendations should be considered:

- ➔ Transport Initiative as part of the Paris Agreement on Aid Effectiveness: Add a focus on sectoral initiatives in the reviews of international development activities

- ➔ Paris Agreement: Create a dedicated work stream on transport and climate as part of the PCCB (start dialogue before the next COP 26)
- ➔ Sustainable Development Goals: When due, the analysis of the Voluntary National Reports (VNR) could be expanded to create a framework for reporting on capacity development and education for sustainable mobility
- ➔ New Urban Agenda: Start with a detailed analysis on the Habitat III follow-up process to identify specific options for sustainable urban mobility to ensure a better representation of sustainable mobility in the international urban agenda
- ➔ Create a strategy as to how international agreements can support national and local governments to act on education and capacity building for sustainable mobility.

To clarify, this chapter did not look into transport specific international multi-stakeholder events and initiatives like the International Transport Forum (ITF) or Sustainable Mobility for ALL (SUM4ALL). However, an initial desktop research indicated that there is also a gap within the sector regarding capacity building and development of professional skills in the future. Potentially, other sectors can provide relevant insights on capacity building and workforce management.

#2

2 Strengthening capacity development for sustainable mobility: learning from health care

While the importance of capacity development is not in question, there is a high uncertainty as to what actions are required in the field of capacity development for the transport sector to become more sustainable. To start with, it can help to better understand the supply of and demand for qualified staff in the public and private sector. The health care system is a good example where the effects of policy initiatives on supply and demand are well researched. For example, the US Department of Labor Statistics estimates the gap of doctors and non-qualified staff in the US at one million after the health care reform in 2012 alone (Campbell, 2011). Using the health care system in analogy to the transport sector, we can delineate a first set of questions: What is the gap in mobility system? How many qualified (and unqualified) staff you are necessary to serve a city/region/country? What policy actions are needed to close this gap?

The World Health Organization (WHO) speaks about *imbalances in the health workforce*. WHO defines an imbalance in the following way: "From an economic perspective, a skill imbalance occurs when the quantity of a given skill supplied by the work force and the quantity demanded by employers diverge at the existing market conditions. Labor market supplies and demands for occupational skills are continuously fluctuating, and at certain points in time, there will be labor market imbalances. In other words, a shortage or surplus is the result of a disequilibrium between the demand for and supply of labor.

In contrast, non-economic definitions are usually normative one.” (Adams, Dal Poz, Stilwell, & Zurn, 2002).

(Adams, Dal Poz, Stilwell, & Zurn, 2002) created a framework to better describe the skill imbalance conceptually, which goes beyond the health care system itself (see [figure 1: Framework for imbalance of human resources for health](#)). They described six key factors affecting a health workforce imbalance. This could be a starting point to reflect on the tasks for the transport sector.

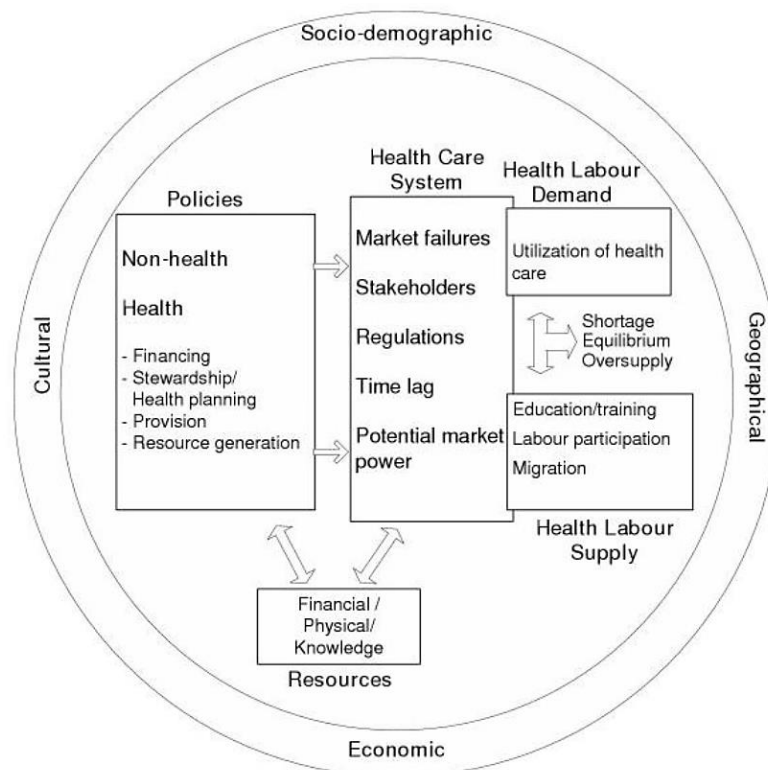


figure 1: Framework for imbalance of human resources for health (Adams, Dal Poz, Stilwell, & Zurn, 2002)

Detailed policy studies in the US and UK are examples of how research can help to formulate specific targeted policy actions, which could in turn lead to initiate changes in sector policy. With a better understanding of e.g. the educational level of staff working in the health sector, and a detailed understanding of the educational system, targeted interventions can be proposed, investments can be directed into appropriate programs, and institutional change can be made (The King's Fund, 2019), (Baxter, 2018).

Arguably, the health care sector is different from e.g. the field of urban mobility: there is no comparatively simple relationship between doctors and health care providers on the one side, and patients on the other side, when it comes to urban mobility systems. Nonetheless, the provision and need for trained staff similarly could be correlated with real-world data such as education programs, city size, level of infrastructure demands, number of daily trips or way travelled, or other variables. This approach

would allow to begin estimating the real demand on city, national or global scale, and would provide a foundation for creating policies to increase labor supply or mitigate demand for mobility professionals.

2.1 Findings and Recommendations

There is an urgent need to get better information on the supply and demand of sustainable mobility expertise. Other sectors like the health sector, with its analyses on imbalance in the workforce, can provide suggestions for similar studies and policy action in the transport sector. The following actions could be considered:

- ➔ Define a *Mobility Skill Imbalance* (available skill-based labor not meeting the need) to create awareness of the issue
- ➔ Research cases of successful labor policies in the transport sector. These could be public or private policies
- ➔ Undertake a detailed analysis of other sectors to understand supply-demand gaps
- ➔ Prepare a framework for action plans to address skill imbalance in the transport sector
- ➔ Create a tool for cities and national government to assess the capacity gap on sustainable mobility and develop action plans to close the gap

#3

3 Current demand for sustainable urban mobility

To better understand the demand for a skilled mobility work force, there is a need to define who is involved in creating, managing and operating the transport systems. As this is easier to assess on the local level, the following sections will focus specifically on urban mobility. The list in [figure 2: Stakeholder groups](#) shows the spectrum of stakeholders in the field of urban mobility (which will likely have experienced different types of formal education as well as require a different set of capacity building measures for professional development).

Typical stakeholder groups involved in transport projects (based on GUIDEMAPS)			
Government / Authorities	Businesses / Operators	Communities / Local Neighbourhoods	Others
Local authorities	Transport operators / providers	National environmental NGOs	Research institutions
Neighbouring cities	Transport consultants	Motorist associations	Universities
Local transport authority	Car sharing companies	Trade unions	Training institutions
Traffic police	Bicycle rental operators	Media	Experts from other cities
Other local transport bodies	Other mobility providers	Local authority Forums	Foundations
Other local transport bodies	National business associations	Local community organisations	
Politicians	Major employers	Local interest groups	
Other decision-makers	Private financiers	Cycle/walking groups	

figure 2: Stakeholder groups (Eltis, 2015)

At the same time, it is important to identify the demand gap on a local level. To define the specific needs in local contexts, a locally created list through a stakeholder mapping exercise might be the first step. Secondly, there is a need to take stock of how many people currently work in the different institutions and what qualification they have.

3.1 Survey on Capacity Building in Urban Mobility

To create some anecdotal evidence for the paper, GIZ staff in four cities worldwide disseminated a questionnaire to gather some stakeholder information on the local situation of local government transport departments. The intention was to be able to obtain an estimate of the demand gap at various local levels and better describe the challenge for public policy. The questionnaire focused on the staff working for the public authority with the following elements:

- Current number of staff ("How many people are employed at the local transport departments?)"³

³ "This should include all staff working for the municipality in the transport department (e.g. planning, construction, demand management (parking), management, oversight of all modes (walking, cycling, informal transport, public transport, road, local rail) as well as staff in related departments (like planning, finance, environment) working on mobility and transport. Please **exclude** traffic police, logistics and maintenance staff, any other staff in related departments, and public transport operators."

- Education (“How many of these employees have a formal training in the field of mobility related to their current work?” Are there other relevant stakeholders in urban mobility without formal training or outside the mentioned departments that should be included?”)
- Gap (“In your opinion, how many additional people would be needed to successfully deliver sustainable urban mobility for the city?”)

As an outcome of the survey, the following three hypotheses were formulated:

- 1) The situation in countries and even cities vary, but there is a need for more qualified staff
- 2) There is a lack of local education meeting today’s need to work on sustainable mobility
- 3) There is a lack of regular training and ways to improve staff knowledge

Key findings will be described within the hypotheses.

1) More qualified staff is needed

In the four cities, the number of responsible departments varied from two to eight departments, and the departments also varied in size. Three of the cities highlighted the need for more qualified staff to work on sustainable mobility, with some of them describing the specific roles needed. With all the cities working in an environment of overall population growth as well as growing motorization, it was highlighted that the role of local government will increase; hence there is a need to analyze the future demand for skilled labor to tackle the upcoming challenges. In conclusion, there is a need for the local or even national level to address this gap in staff numbers to strengthen local institutions. This could begin with a needs assessment to identify priorities for education and capacity development.

2) Strengthening formal education and professional recruitment is key

While in all cases there are some local/regional universities, there are no specific dedicated degrees on sustainable mobility. In addition, only one city had reported the existence of a specific course on Sustainable Urban Transport. In order to attract qualified staff, cities therefore often rely on non-local experts. On the other side, since there are few formal degree programs, the post-graduation career paths to city departments are not well established. City governments need to address this challenge but are limited in their influence on capacity building programs.

3) The lack of regular training and management skills hinder staff development

Only one of the four responses highlighted the existence of regular training for staff and did not see any demand for additional training. In the other three cases either no training was provided or only insufficiently. It was interesting to learn that when training was suggested, skills demanded were not only technical, but also in terms of management and leadership. Other observations focused on the need for better cross-departmental coordination and alignment of strategic vision within the city departments.

3.2 Estimating the global demand

Both initial desktop research and GIZ survey work indicate that there is an absence of any wider study on the demand for education and capacity development in the field of sustainable mobility. To raise

awareness and show the scale of the capacity problem, it can be helpful to provide an estimation of the global demand gap. Our initial calculation estimates a gap of at least 250,000 professionals in the field of urban mobility (see [box 6](#): Food for thought - what is the future global demand?).

box 6: Food for thought - what is the future global demand?

About 55% of the 7.8 billion people in the world live in cities, and predictions indicate it will be around 70% by middle of the century. The vast majority of these people live in developing countries. It is predicted, that by 2050, 8.5 billion people will live in the developing world, of whom about 65 percent in cities. In 2018 it was estimated that there were 210 million people living in the 20 largest cities in each of the eight fastest growing countries (India, Nigeria, Pakistan, Ethiopia, Tanzania, Indonesia, Egypt, Congo). This is expected to increase by more than 400 million to a total of more than 600 million by 2050.

Assuming a requirement of 100 skilled staff to manage and plan urban mobility in smaller cities of under 1 million people and 250 staff for larger cities exceeding 1 million, we would end up with a need of 25,000 skilled staff across these 160 cities today. Just with the predicted population increase till 2050, this number would rise to about 33,100 – and given the average duration of professional life, this will be an entirely new cohort. This does not yet factor in the high staff turnover in public administrations or the increasing complexity of these tasks in future.

As this rough calculation covers less than a tenth of the total urban population in the developing world, an initial target number across the developing world could be at least around a **quarter of a million** (Data based on latest UNDESA population statistics (UN Department of Economic and Social Affairs, 2019)).

3.3 Findings and Recommendations

The previous chapter has shown that there is currently insufficient information on the current and future needs for capacity building. There is also insufficient knowledge on the distribution of the missing skilled and unskilled labor working for urban mobility stakeholders. The survey results from four cities strongly supported the observation that there is a high need to address the identified issues.

The following tasks could be considered for future research and action:

- Prepare a framework for action plans to address skill imbalance in the transport sector and/or create national/regional studies. This should include a regional/global focus on:
 - ➔ The staff gap: provide estimates for the number of people who should be employed to enable sustainable mobility
 - ➔ The knowledge gap: Identify a methodology for a capacity development needs assessment for the transport sector
 - ➔ The education gap: Collect a global/regional/local overview of current educational programs (starting with universities), and analyze to what extent current content and new programs align with the principles of sustainable mobility

These studies could be aligned with specific activities to test and improve the situation in the country. Using the research to design a specific action and investment plan could further validate the research framework and allow to integrate new findings from practice.

#4

4 Supply: Towards better information on education and capacity building

After recognizing the gaps in capacity facing local authorities striving to enable sustainable urban mobility, there is a need to look into the supply side. Initial research suggests that there is a substantial gap in any attempts global or regional overview on current education around the theme of sustainable mobility. The Transformative Urban Mobility Initiative (TUMI), formed at the Habitat III conference in Quito in 2016, created for the first time a catalogue of training activities in sustainable mobility (Transformative Urban Mobility Initiative (TUMI), 2018). It includes several over 50 trainings modules and opportunities provided by its partner organizations. For capacity building, particularly in the context of international organizations, this is a starting point. However, there seems to be no large-scale overview of current capacity building activities by international organizations nor a list of specific national education activities on sustainable (urban) mobility.

The goal could be a global overview of the education and capacity building activities on sustainable (urban) mobility. One potential blueprint for the transport sector might come from the Human Capital Report of the World Economic Forum (WEF), published in 2015, which includes country information on numbers of people with a university degree and further detail on broad categories like engineering and agriculture. It created a Human Capital Index “to serve as a tool for capturing the complexity of education and workforce dynamics so that various stakeholders are able to take better-informed decisions” (World Economic Forum, 2015). An idea for the future could be to create a similar index for sustainable mobility.

Such a study would need to be based on national information. For Germany, Gerlach (2004) looked into different employment sectors (see [figure 3: Employment Sectors for Transport Graduates](#)) and their job profiles. In addition, he collected information on transport-related university education in Germany (see [figure 4: Systemization of Transport Studies](#)). He created eight employment sectors to differentiate the skills required for the employers to later match with the supply from the universities.

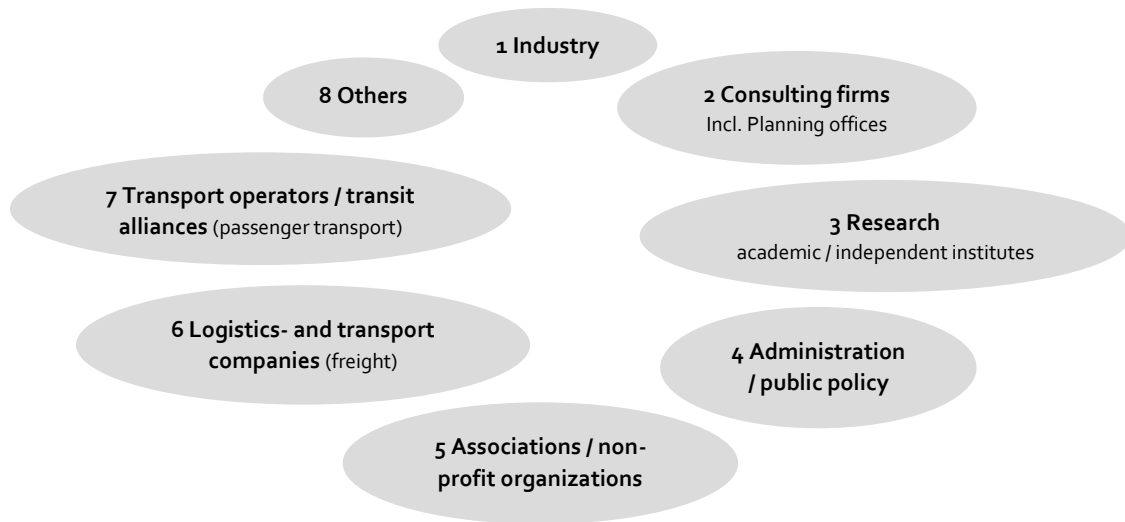


figure 3: Employment Sectors for Transport Graduates (Gerlach, Haase, & Ultzmann, 2004)

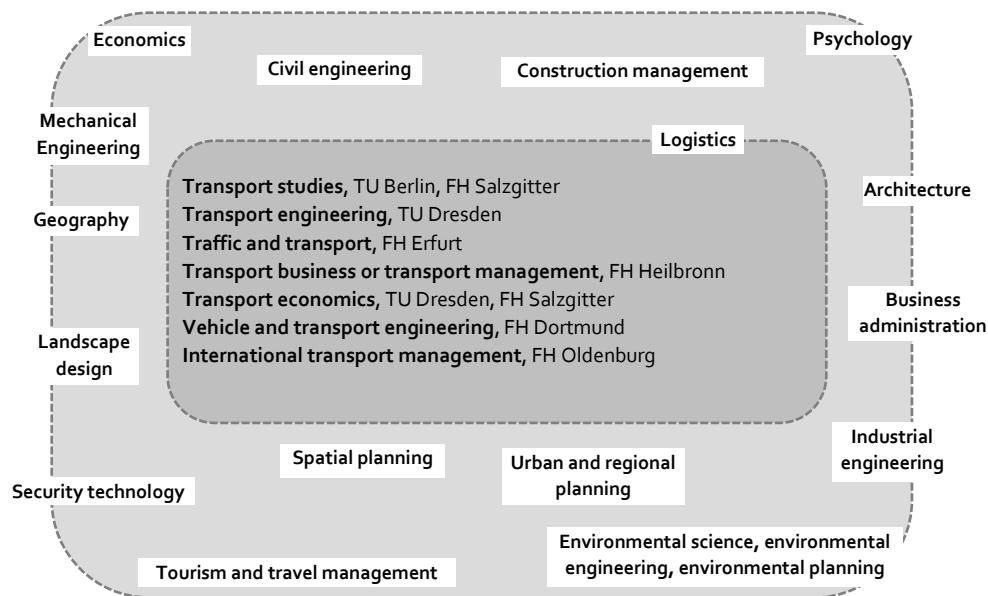


figure 4: Systemization of Transport Studies (Gerlach, Haase, & Ultzmann, 2004)

In figure 4: Systemization of Transport Studies, the different types of university degrees can be seen. This study, however, while differentiating employment fields and degree programs well, does not provide the number or costs of these programs and jobs. But it can serve as a foundation for a better understanding of national demand and supply for the transport sector, which national institutions could utilize.

National education institutions are an important pillar of education and capacity building, though their set-ups vary greatly from country to country. For example, in China, all higher-level civil servants have to go through the National School of Administration, where they participate in civil service training and policymaking of civil service training, but only gain limited sector-specific technical knowledge. In India the Institute for Urban Transport (IUT), established at the end of the 1990s by the Ministry for Urban Development, is one of the leading governmental organizations to increase the quality of urban transport planning and implementation (Institute Of Urban Transport (India), 2014). In Belgium, a training program for Mobility Advisors for public administration personnel was created at the end of the 1990s in the Walloon Region. Since 1998, more than 1,000 people have been trained and are part of a community of practice (Wallonie Mobilité SPW, n.d.).

To ensure capacity building at scale, there is a need to better understand the role of national institutions and identify options to either build upon or increase their effectiveness. At the same time, it would be important to look into other, potential reasons like the lack of dedicated funds, lack of political will behind the identified gaps in the future.

4.1 Findings and Recommendations

This chapter shows that there is a global lack of knowledge on the current education in the field of sustainable mobility. In addition, the evidence for understanding education as well as supply and demand for sustainable mobility at a national level is scarce. The study on Germany's transport sector (Gerlach, Haase, & Ultzmann, 2004) was carried out fifteen years ago and no similar research seems to have been carried out since then. We hence propose some further venues to consider for future work:

- ➔ Create a global list/platform to capture international and national capacity building activities
- ➔ Create a more detailed study to create a human capital sustainable mobility index based on the WEF work.
- ➔ Create a framework for national demand and supply studies to then start with national studies around the world
- ➔ Develop guidance on options to institutionalize capacity development on a national level

Such studies could be aligned with piloting new educational programs and development of curricula using the outcomes of the research.

#5

5 A roadmap towards capacity building for the global mobility transition

This pre-study has shown that there is a fundamental lack of understanding capacity in the transport sector, especially for sustainable (urban) mobility. Currently, there is no comprehensive overview on the supply and demand of human capacity needed for sustainable mobility. To enable policymakers and institutions to address this gap both in theory and practice, there is a broad variety of actions needed. This paper raises some of the key questions to be answered to move forward. While this paper shows the need for better understanding the status quo, it remains vital to increase implementation of capacity development activities and other actions on the ground, both for people and institutions. This Ideally some of the suggested research can be aligned with and validated through additional implementation on the ground.

This cannot be done alone. There is a need for coordinated and comprehensive action and to move started to create a coalition for sustainable mobility capacity development and education to align the needed diversity of action needed. Such a coalition could build on existing initiatives like TUMI, ACT, SUM4ALL or the MDB Working Group. Most important would be to ensure the participation of a wide range of international stakeholders. Such an initiative could create a global roadmap for capacity development for sustainable mobility.

The following tasks are identified in this paper:

Explore opportunities to scale capacity development for sustainable mobility on the global level

- Develop a Transport Initiative as part of the Paris Agreement on Aid Effectiveness
- Create a dedicated work stream on transport and climate as part of the Paris Committee on Capacity Building (PCCB)
- Start with the analysis of this year's Voluntary National Reports (VNR) of the Sustainable Development Goals (SDGs) to create a future framework for reporting on capacity development and education for sustainable mobility
- Start with a detailed analysis on the follow-up process of the New Urban Agenda to identify specific options for sustainable urban mobility

Explore opportunities to scale capacity development and education for sustainable mobility at the national and local level

- Create a framework for a Needs Assessment and pilot it in several cities and countries
- Explore and assess different options for national governments to create/improve capacity development institutions

Future research on capacity development to better understand the supply and demand

- Define a *Mobility Skill Imbalance* (available skill-based labor not meeting the need) to create awareness of the issue
- Research cases of successful labor policies in the transport sector. These could be public or private policies
- Undertake a detailed analysis of other sectors to understand supply-demand gaps
- Prepare a framework for action plans to address skill imbalance in the transport sector. This should include a regional/global focus on:
 - ➔ The staff gap: provide estimates for the number of people who should be employed to enable sustainable mobility
 - ➔ The knowledge gap: Identify a methodology for a capacity development needs assessment for the transport sector
 - ➔ The education gap: Collect a global/regional/local overview of current educational programs (starting with universities), and analyze to what extent current content and new programs align with the principles of sustainable mobility
- Create a tool for cities and national government to assess the capacity gap on sustainable mobility and develop action plans to close the gap
 - ➔ Create a more detailed study to develop a human capital sustainable mobility index based on the WEF work
 - ➔ Create a framework for national demand and supply studies to apply to national education systems around the world
 - ➔ Identify options for future financing mechanism for capacity development

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About TUMI: Many Partners, One Goal

TUMI is an alliance of the world's leading organizations in sustainable transport. We build a community of actors to transform policies and business and advance science and society. Here lies the people power to leverage sustainable mobility worldwide!

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