INSIGHT

How Small to Middle-Sized Cities Can Lead the Way to Low Carbon Mobility for All

Small and medium-sized cities in developing economies have the highest potential for avoiding the mistakes that keep many megacities trapped in traffic gridlock and air pollution. Photo credit: ADB.

Secondary cities in Asia, Africa, and Latin America have an opportunity to avoid gridlocked growth patterns and to integrate sustainable energy and transport solutions.

Introduction

Energy and mobility are critical sectors for achieving the Sustainable Development Goals (SDGs). Mobility impacts people's social and economic opportunities, making it a key sector for helping reduce inequalities. Transport enables workers to access their jobs and farmers to get their goods to market, but the growth of the sector needs to be well managed to avoid polluted gridlock.

Meanwhile, many modern mobility services are dependent on reliable access to energy. Given that the transport sector is the fastest growing emitter of global greenhouse gas (GHG) emissions, the challenge the world faces is to provide access to energy and mobility while avoiding an increase in local and global pollutants.

Analysis

While there is some research on the transport and energy nexus, this work often focuses on megacities or cities in developed countries. For the report *Switching Gears: Enabling Access to Sustainable Urban Mobility*,[1] Sustainable Energy for All (SEforALL) took a closer look at fast-growing, small to middle-sized cities in developing countries and found that these cities have the highest potential for avoiding the mistakes that keep many megacities trapped in traffic gridlock and air pollution.

For identifying locations with high potential to improve access to sustainable urban mobility, we used the following criteria:

- Cities with a population between 300,000–1,000,000 (2018 data),
- Population growth expected at an average of more than 50% by 2030,
- Locations with more than 5% of the population at the base of the pyramid,
- Locations not in conflict areas, and
- Locations ranking higher than 2 on the Good Governance Index.

We then grouped the cities to highlight similarities in challenges and potential for developing sustainable solutions.

Infographic: SEforALL

City type 1: Efficiency Opportunists

The first group includes the fastest growing cities in the world by 2030, and it is perhaps no surprise that 19 of the top 20 cities here are found in India, with Gwagwalada in Nigeria, completing the list. India accounts for 121 out of a list of 260 cities. This indicates that India would be a good target to support early-intervention and tracking tools for air quality, energy efficiency, and spatial planning to incorporate the energy and land-use sector.

City type 2: Digital Disruptors

The second group looks at populations that could gain efficiency through their significant access to communication and digital technologies. Furthermore, these cities are positioned to derive additional co-benefits of sustainable energy and improved mobility, such as improving harmful air quality and unsafe roads.

This city group is the most diverse top 20 of all four groupings with a range of countries and cities ranked, from Tamale, Ghana to Pokhara, Nepal. These 20 locations share a common denominator of having high access to communication technologies and could use digital tools to access sustainable urban mobility.

City type 3: Electric Vehicle Leapfroggers

The third group includes locations where electric mobility is best deployed. Windhoek, Namibia is at the top of the list, with cities in the Philippines taking up the other 19 spots. In these locations the road infrastructure is considered relatively good, and the share of renewables in the electricity sector is high, both key requirements for electric mobility.

City type 4: Renewable Drivers

The fourth group focuses on renewable energy opportunities by looking at the full range of fuels available to drive sustainable transport and ranking cities based on their carbon dioxide emissions from transport relative to the gross domestic product. The list finds three African countries topping the list: Nigeria, Ethiopia, and Zambia. This city group includes those locations that have renewable energy resources available to support access to sustainable urban mobility, biofuels, hydrogen, and electricity generated from renewable sources.

Linking and mapping the demand for energy and mobility can support the development and implementation of sustainable mobility solutions, providing underserved groups with new mobility access. Three solutions show great potential for making this happen. These solutions are not distinct but operate across a shared spectrum, and in certain aspects there is more potential for overlap than others.

Solution 1: Integrated energy, land-use, and mobility planning

Tying together land-use and transport planning has long been a worthwhile action of sustainable transport practitioners. Land-use planning can promote compact cities and enable public transport that better uses scarce land. In this context, public transport in the form of buses, while not a new technology or innovation, can be essential for transforming smaller cities with scant budgets into thriving cities. Integrating not just land use and transport planning but also the energy sector and energy efficiency can reap the multiple benefits of a systems approach.

Solution 2: Demand-side targeting and management

From a sustainable transport point of view, a useful tool is the traditional avoid-shift-improve approach: where you first **avoid** unnecessary travel by providing the services closer to the source of demand through, for example, integrated land use and transport planning; then **shift** to more efficient modes of transportation, from individual car use to, for example, mass transit options, such as buses; and then **improve** the efficiency and lower the carbon intensity of the fuel used, be it gasoline, diesel, biofuel, hydrogen, or electricity.

Focusing on **avoid**, by using demand-side management mapping of mobility and energy, there is a greater chance to efficiently utilize both by avoiding unnecessary travel and energy use.

Solution 3: Electric mobility

The energy supply for mobility should be as clean as possible; this will be more effective when the

energy sector for electric mobility is included from the outset.

Electric vehicles come in all shapes and forms, but all have the common ability to eliminate tail-pipe emissions and shift the emission reduction burden to the electricity supply provider. In regions without access to electricity or with fossil-fuel dominated electricity, pairing remote solar photovoltaic with electric two-wheelers or electric buses can provide sustainable urban mobility directly.

Implications

To achieve the three solutions, governments and partners can work together through the following recommended steps:

1. Focus on public transport, walking, cycling, land use, and adequate pricing of car usage.
2. Improve available data and metrics to quantify and track access to sustainable urban mobility.
3. Support the achievement of multiple SDGs. When considering energy and mobility, the potential for achieving other SDGs multiplies.
4. Address policy gaps through concerted efforts for tracking relevant policies and regulations in key countries.
5. Create alliances between partners who may not have crossed paths before. This includes industry partners, real estate stakeholders, cities, and banks that can support common efforts to provide innovative and feasible sustainable urban mobility.
6. Increase capacity building in spatial planning for government agencies to maximize the synergies for energy and transport solutions at an early stage of urban planning.
7. Facilitate and enable investments in renewable energy and sustainable transport to decarbonize the grid and support the growth of new mobility business models.
8. Identify and foster champions, including mayors, for intangible aspects including behavioral and cultural shifts that can support overall improved access to sustainable urban mobility.

Energy and mobility linked together have the potential to offer even more for secondary cities and those at the base of the pyramid. In smaller cities there is an opportunity to have a significant and immediate impact on sustainable energy and mobility planning, spatial mapping of mobility demand, and financing energy and mobility projects combined.

Watch the Webinar: How to Scale-Up Sustainable Urban Mobility at SEforALL.org.

[1] Priority countries: Benin, Bolivia, Cameroon, Côte d'Ivoire, Ethiopia, Ghana, Honduras, India, Indonesia, Kenya, Mozambique, Namibia, Nepal, Nigeria, Philippines, Senegal, South Africa, United Republic of Tanzania, and Zambia

Resources

Sustainable Energy for All (SEforALL). 2020. *Switching Gears: Enabling Access to Sustainable Urban Mobility*. Vienna.

SEforALL. 2020. Switching Gears: Enabling Access to Sustainable Urban Mobility. Infographic.

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