8.2 Electric Mobility in Developing and Emerging Countries

8.2.1 A Strategy for Sustainable Urban Mobility - The ASI-E Framework

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This topic is unavoidable in view of urbanization and sustainable development issues. However, as we will see it, electric mobility is just a solution among others to contribute to the so-called sustainable mobility.
This first section will focus on sustainable mobility. Electric mobility itself will be addressed in the next and last section. Together these two sections offered by the French Development Agency provide coherent overall perspectives.

An unprecedented population growth

Today's world faces two challenges : a demographic explosion and the fight against climate change. In this context, ensuring the conditions for a global sustainable urban mobility is a major issue of our century. In this video, we will see that this challenge can be met. The current path can be changed and our cities can be transformed to achieve this goal.
Since 2005, for the first time in history, more than half of the global population lives in cities. Today, this level reaches 54% and should reach 70% in 2050. By then, UN-Habitat estimates that the global urban population could go from 4 billion to 6.8 billion inhabitants, increasing by more than two thirds. These figures can make our heads spin and perfectly illustrate how big a challenge will have to be taken up in terms of urban mobility.

Urban mobility is part of everybody ?s life

Urban mobility is simply the daily life of each and every one of us. It is a factor of populations' quality of life. Mobility and urban transports are fundamental components for the sustainable management of a territory.
To ensure a sustainable, inclusive and economically-efficient development, the main issue is to limit the congestion which paralyzes cities and which increasingly brings air pollution, CO_2 emissions, and road congestion.
Let us get back to some figures and current trends that must be changed :

- 2 to 5% of the GDP for each urban area is the equivalent of the socio-economic cost congestion in cities. This rate can reach 10% in some cities.
- 7 years is the very short period during which the private car fleet doubles in developing countries.
- 2.3 Gt of CO2 equivalent per year is the global emission level due to urban transport. This figure could double by 2050 according to a do-nothing scenario.

Mobility conditions vary as the economy grows

Most major urban areas in developed countries have ordered public transport networks and institutional frameworks that can meet transportation needs in cities and try and hold back the use of private vehicles. These systems have been gradually implemented and required very heavy investments over decades, mainly financed by public funds. But they are fragile and require constant attention, investments and innovations to increase or at least maintain the modal share of public transports and non-motorized modes in cities.
The issue is a bit different in emerging and developing countries where the task is huge in a context where the persons' mobility rapidly increases as economy develops. Emerging countries progressively adopt mass transport systems and pursue, sometimes successfully, institutional reforms required to improve the performances of this sector. The efficiency of the implemented policies mainly depends on the resources allocated to the sector but also first and foremost on the degree of political will. Indeed, rapid and sustainable transformation projects of the sector are always carried by visionary and committed decision-makers.
As for developing countries, in most cases public authorities have neglected the sector for decades. The global trend is seeing a decline or even, in some cases, the end of institutional public transports, which means organized by public authorities. It is gradually replaced by independent transport also called informal transport. Informal transports offer a replacement transport which spontaneously and usefully meets the transport demand in cities but in a disorganized way. More generally, cities in developing countries face many crossed issues. The latter are largely detailed in the relevant literature.
It is now urgent to react to change these trends and create conditions for a more sustainable mobility. The current transport systems must be improved and alternative solutions to private vehicles must be proposed. Space- and carbon-saving solutions with a higher capacity that are also affordable and adapted to the needs of all the inhabitants, including the most vulnerable.
It is necessary to invest for these populations right now in adapted, efficient and environment-friendly solutions according to an integrated planning. Fortunately, today there is an actual awareness and many encouraging initiatives emerge in developing countries.

Strategic, technical and financing support from international financial Institutions (IFI)

The development partners unanimously acknowledge that urban mobility is a driver for development at the service of sustainable development goals. Development partners are international financing institutions, like the World Bank, regional development banks such as the African Development Bank and bilateral development agencies such as the French Development Agency at which I am employed.
Initiatives in favor of sustainable urban mobility contribute to the achievement of several sustainable development goals or SDGs that have been adopted by the UN General Assembly in September 2015.
Furthermore, the transition towards low-carbon transports is unavoidable to hold

back the planet's temperature rise according to the commitment signed during the Paris Agreements on climate in 2015.
Today, the traditional approach which consists in more road space and new road infrastructures to meet transport needs has demonstrated its own limitations today. An alternative approach is needed to solve the current transport issue. It implies the implementation of sustainable mobility policies in favor of public transports, non-motorized modes and the improvement of the transport energy efficiency.

The ASI-E framework - holistic approach

Development partners act hand in hand and recommend a holistic approach. Today, they all acknowledge a strategic framework : the Avoid, Shift, Improve, Enable framework, or ASI-E, which has emerged over the last decade. This framework is a combination of coordinated measures that create the conditions for a sustainable urban mobility at the service of the quality of life and economic development.

Avoid Reducing or holding back the need for travel in urban areas thanks to a better planning of urban fabric and mobility. It is based on urban densification especially along mass transport axes and stations. It defines the compact city or transit-oriented development.

Shift Promoting the modal shift towards public transports and non-motorized modes, thus efficient and low-carbon modes.

Improve Improving the energy efficiency of vehicle fleets especially by making good use of the significant technological progresses and improving the quality of service of existing and future public transport systems to gain attractiveness.

Enable This dimension has been added as a second step because it is essential to support the first three. It is a question of adding a better governance and an appropriate institutional framework which enables public authorities to elaborate and implement mobility policies at a local and national level. This part also recommends the adoption of innovative financing mechanisms and the well thought through involvement of the private sector. There is an abundant literature describing the possible measures according to the ASI-E framework.
There are many examples illustrating innovations and good practices. Many publications related to this topic can be accessed online.

Furthermore, the current revolutions offer very promising possibilities. It is a question of technical, digital, energy revolutions and the evolution of usages and practices. Initiatives such as ASI-E require technical and financial means, capacity development and the exchange of good practices.

Beyond the financing of projects, the support of development partners takes the form of initiatives to support the transformation of cities in developing and emerging countries such as Sustainable Urban Mobility for All, developed under the aegis of

the World Bank, or Mobilize Your City on the initiative of the French Development Agency and the German GIZ.

Mitigation, adaptation, and resilience of infrastructures

Climate change puts economies, societies and ecosystems at risk. In order to reduce these diverse risks, it is necessary to take measures to strongly reduce greenhouse gas emissions, mitigation measures, while adopting measures to reinforce the resilience to climate change effects, adaptation measures.

Conclusion - toward sustainable urban mobility

Thus we have noted that urban mobility and the adoption of a more sustainable model is at the heart of our century's concerns. There is an actual awareness that we must urgently change trajectories. It is possible and some cities currently do it or already started. We can rejoice in this first step but the hardest part is yet to come since it is about a massive and systematic realization in actions.
We will remember is that mobility is a driver for development at the service of sustainable development goals. That mobility policies are levers to fight against climate changes. The ASI-E is its framework and is unanimously recognized. Finally, the sector is on the verge of technological revolutions with benefits that should be exploited to maximize the impact of urban mobility policies.
In this context, electric mobility, especially collective, has a growing place in the current considerations.
The role of electric mobility in the sustainable mobility scenarios in developing cities will be developed in the next section.