

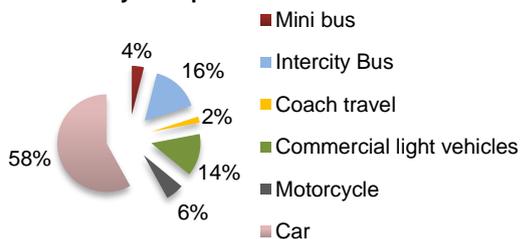
Energy Efficiency in Urban Mobility

Context: Urban Mobility in Brazil

The Brazilian vehicle fleet (including cars, motorcycles, commercial light vehicles, trucks and buses) reached more than 55 million in the last years with upwards tendency. This condition is reflected in the elevated share of road-based modes in urban trips, mainly individual ones. Due to severe traffic congestion, these are associated with high levels of resource and energy inefficiencies, for instance in terms of energy consumption per passenger/km. Urban transport systems in Brazil work at capacity limits. The situation may deteriorate considering the prospected demand increase from individual transport and the insufficient provision and integration of public transport services.

In this context, CO₂ emissions from passenger transport sector are expected to exceed 135 million tons in 2020 representing a growth of 52% compared to 2010 (Sectorial Plan of Transport and Urban Mobility for Mitigation and Adaptation to Climate Change, PSTM, 2013). Individual transport would then be responsible for 64% of CO₂ emissions, while public transports would represent 36% of CO₂ emissions of passengers transport.

CO₂ Emissions by transport mode



Source: IEMA 2015

The traditional approach to deal with increasing transport demand in Brazil is to provide more and more road space, by means of new and larger road infrastructure. However, this supply-oriented approach has not delivered the expected benefits. Instead of relieve, it results in rising traffic with unacceptable levels of congestion, accidents and higher GHG emissions as well as escalating social costs.

In the last decade, at national levels, the *Programa de Aceleração do Crescimento – PAC* (Growth Acceleration Scheme) and the *Pacto de Mobilidade* have allocated vast resources of up to 25

billion EUR for urban mobility. In 2012, the Urban Mobility Law (Lei 12.587/2012) was published, establishing the guidelines of National Policy of Urban Mobility (PNMU). The law promotes non-motorised and public transports modes as well as the broad integration of urban transport services. Moreover, it imposes the development of Urban Mobility Plans for cities with more than 20,000 inhabitants.

In fact, the implementation of the national guidelines is a great challenge for Brazilian cities. Technical training deficits and the lack of capacity building in the field of sustainable mobility are some of the challenges in this matter. However, several Brazilian cities have already committed to sustainable development and are moving forward to establish more efficient mobility systems.

A-S-I principles to sustainable transport

To create cities for people instead for cars, an innovative approach to the current transport problems in Brazil is required, targeting sustainable mobility and the improved quality of life of Brazilian citizens.

One approach inspired by the principles of sustainability is 'A-S-I', which stands for Avoid-Shift-Improve. The approach focuses on the demand-side of urban transport. Its objectives is to create liveable cities by promoting alternative mobility solutions and sustainable transport systems that seek to achieve significant reductions of energy consumption, GHG emissions, and travel time.

Energy efficiency in transport systems results from three dimensions: the entire system (system efficiency), individual trips (trip efficiency), and vehicle technology (vehicle efficiency).

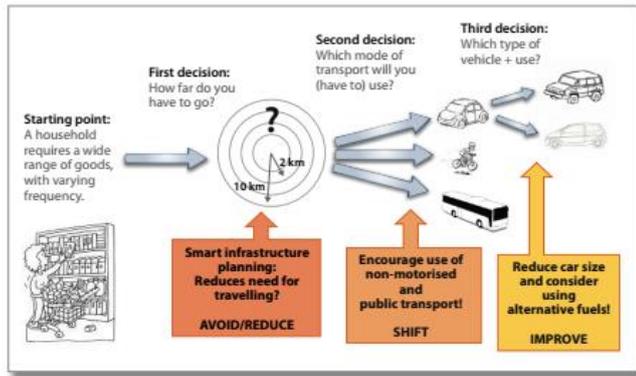
These are directly linked to the A-S-I strategy: (1) *Avoid* the increase of transport activity and reduce current transport demand. (2) *Shift* to or maintain the share of environmentally friendly modes. (3) *Improve* the energy efficiency of transport modes and vehicle technology.



Left: Bus lane in Leblon, Rio de Janeiro.

Middle: Traffic jam in São Paulo.

Right: Bicycle-sharing system in Rio de Janeiro.



A-S-I Approach Source: GIZ

Project Objective

The conditions for harnessing the energy efficiency potential of urban mobility in Brazil have improved.

Approach

The project Energy Efficiency in Urban Mobility (EEMU) addresses the key elements that shape urban mobility in Brazil: national policies and municipal actions.

Managing urban mobility towards energy efficiency essentially requires multiple interventions at institutional, regulatory, operational and other levels, which are subject to varying temporal and cost characteristics when it comes to their implementation.

The project will thus consider the energy efficiency potential of measures over time and their demand for resources accordingly. It will further advice on the appropriate scope of actions in two pilot project cities, and disseminate promising experiences, practices and results to federal agencies and stakeholders.

EEMU is in line with the PNMU and its synergies correspond to the national effort to reduce GHG emissions as indicated in the Sectorial Plan of Transport and Urban Mobility for Mitigation and Adaptation to Climate Change (PSTM), legislation 12.187/2012.

Results

Instruments for the assessment of energy efficiency potentials and the monitoring of relevant actions in the field of urban mobility are available.

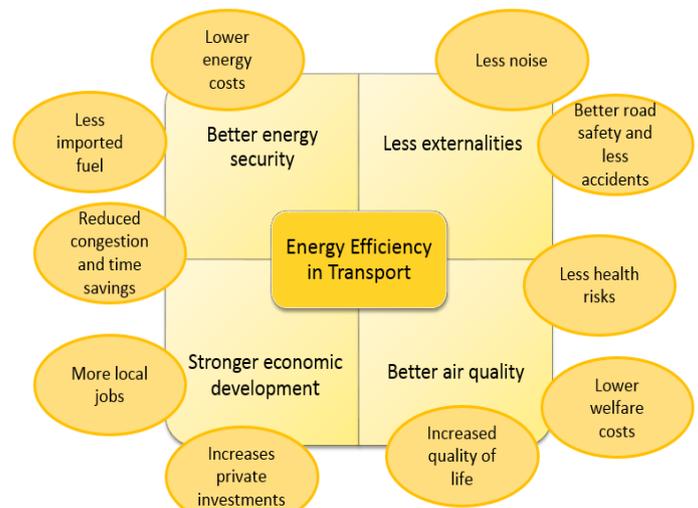
Technical guidelines and recommendations for planning, implementation and management of energy-efficient urban mobility in Brazilian cities are available.

An integrated mobility strategy that incorporates energy efficiency criteria and other sustainable mobility approaches is ready for implementation in the pilot cities of Uberlândia (State of Minas Gerais) and Sorocaba (State of São Paulo).

The exchange of international and inter-sectoral expertise and knowledge on energy efficiency in urban mobility is strengthened.

Technical knowledge acquired from the pilot cities is shared with other Brazilian cities, within the transport sector and beyond.

Trainings to decision-makers from the Ministry of Cities, the pilot cities and other agents are provided.



Energy Efficiency in transport. Source: GIZ with adaptations from Ministry of Cities

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