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Achieving Sustainable Mobility:

Why policy-makers should pursue the four goals at the same time

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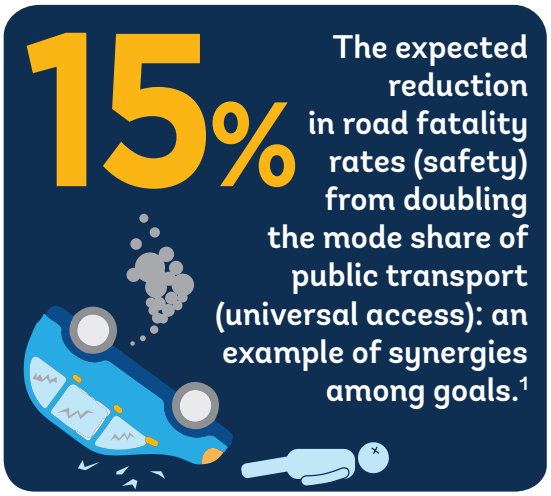
The Global Mobility Report frames the transport agenda around four global goals: universal access, efficiency, safety and green. Unless those four goals are pursued simultaneously, mobility will not be sustainable for current and future generations. For example, policy decisions must not prioritize universal access interventions without considering the implications they may have on efficiency, safety, and green. Deviating from any of the goals will compromise the achievement of sustainable mobility.



At stake is the fact that none of these goals are independent, but they are all interconnected. In many cases, there are synergies among pairs of goals, or even across all four. Synergies occur when projects and policies help achieve more than one goal at a time. But in other cases, advancing the agenda on one goal may hinder another. Therefore, synergies should be captured and apparent trade-offs should be managed.

By acknowledging these interconnections and managing them appropriately, mobility will be able to generate more benefits for society, strengthening its role as a driver of social inclusion and economic competitiveness, with the least impact on safety and the environment.

This note provides examples of the synergies and trade-offs a policy-maker should consider and manage.

Synergies across the four goals

Reducing speeds can help achieve all four goals: it improves fuel efficiency for light and especially heavy vehicles, reduces greenhouse gas emissions, increases universal access by improving travel conditions for pedestrians, bicycles, and slower moving vehicles, and reduces crash fatalities and injuries. Studies estimate that each 1 percent decrease in speed generates a 4 percent decrease in deaths[2], yet many countries allow higher than ideal vehicle speeds, because some key costs—crashes, emissions, noise, etc.—are not considered.

Multimodal freight transport systems that operate high load-factors and capture the economies of scale of rail and waterborne freight, may also unlock multiple synergies, providing for green mobility by

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1 Stimpson, J. P., Wilson, F. A., Araz, O. M., and Pagan, J. A. 2014. Share of Mass Transit Miles Traveled and Reduced Motor Vehicle Fatalities in Major Cities of the United States. Journal of Urban Health, 91(6), 1136–1143.

2 Nilsson, G. 2004. Traffic Safety Dimension and the Power Model to describe the Effect of Speed on Safety, Lund Institute of Technology, Sweden.

lowering emissions per ton-kilometer, enhancing efficiency in terms of energy consumed, and improving safety via the safer operation of rail and water freight movement than road freight transport.

Universal access and green mobility

Universal access may mean more travelers and more trips, but when accomplished primarily by public or active modes of transport it can lead to emission reductions and lower air and noise pollution. The key to unlocking this synergy is to induce a modal shift away from less efficient modes, such as single-occupant automobiles.

Road expansion and rehabilitation, on the contrary, may improve universal access, but it may increase emissions by generating sprawl and inducing travel.

Universal access and efficiency

In rural areas, ensuring universal access by providing all-weather roads also contributes to increasing economic competitiveness. With lower freight transport costs, local producers can better connect to national and global markets.

Universal access can hinder system efficiency: for example, when public transport service is provided to low-density or low-demand areas, or where mobility can be provided at a lower cost through shared or private modes of transport.

Universal access and safety

Integrated street systems that include sidewalks for pedestrians can increase safety and encourage travelers to walk, enhancing access to those with no other means of mobility. In addition, slow traffic speeds reduce serious crashes and allow for safer walking and cycling.

Poorly designed investments that strengthen access for motorized traffic—but create conflicts between motorized and active modes—may result in more fatalities and injuries and restrict access for those who cannot afford motorized transport.

Efficiency and safety

In passenger transport, this synergy can be unlocked with a shift away from private automobiles and toward public transport. Studies suggest that road fatality rates may on average decrease by 15% when the mode share of public transport doubles.[3]

A trade-off between efficiency and safety involves motorcycles, which are efficient in the use of road space and cause less impact than automobiles on traffic congestion. However, studies show that motorcycles impose around 20 times the fatality rate of automobiles.[4]

Efficiency and green mobility

Reducing vehicle traffic and shifting travel to lower-emission modes improves resource efficiency and cuts greenhouse gas emissions and air pollution. Regarding freight transport modes, the external air pollution and greenhouse gas emission cost of truck transport are estimated to be about 7 times higher per ton-km than for rail transport.[5]

The source of vehicle power can also have a major impact on efficiency and green, especially when comparing internal combustion engine automobiles to electric cars running on electricity from renewable sources.

Other interventions that achieve efficiency and green mobility include congestion charging, which reduces inefficient vehicle travel, or digital platforms that may help reduce empty truck backhauls.

Safety and green mobility

Pedestrian and bicycle infrastructure are green-friendly and, if well designed, also improve safety as part of a comprehensive effort to make traffic calmer.

Policies that promote vehicle fleet renewal—particularly in developing countries with sizeable markets for imported secondhand vehicles—can improve safety and reduce emissions because of more rigorous emission and safety standards for newer vehicles.

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[3] Stimpson, J. P., Wilson, F. A., Araz, O. M., and Pagan, J. A. 2014. Share of Mass Transit Miles Traveled and Reduced Motor Vehicle Fatalities in Major Cities of the United States. Journal of Urban Health, 91(6), 1136–1143.

[4] European Transport Safety Council 2003. Transport Safety Performance in the EU: A Statistical Overview.

[5] Forkenbrock, D. J. 2001. Comparison of External Costs of Rail and Truck Freight Transportation. Transportation Research Part A: Policy and Practice, 35(4), 321–337.

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