How can transport support green transition in LAC?

Key highlights

- The transport sector accounts for 23% of the world's energy-related CO2 emissions. In the case of Latin America and the Caribbean (LAC) countries this share can be even higher. According to the International Transport Forum's (ITF) Transport Data Explorer, the share of CO2 emissions from transport in total energy-related CO2 emissions in 2020 rose to 25.3% in Argentina, 30.3% in México, 30.4% in Chile and 36.8% in Colombia (ITF, 2023b).

- Despite some progress, transport emissions will not fall fast enough in the coming years to meet international climate objectives and deliver against the Paris Agreement goals: emerging economies, as is the case some LAC countries, have a risk of urban sprawl in fast-growing urban areas. Private motorised vehicles (especially cars and motorcycles) continue to be the primary mode of transport, and other modes such as trains are not fully developed. Also, the projections show that in LAC, the passenger transport demand will almost double by 2050.

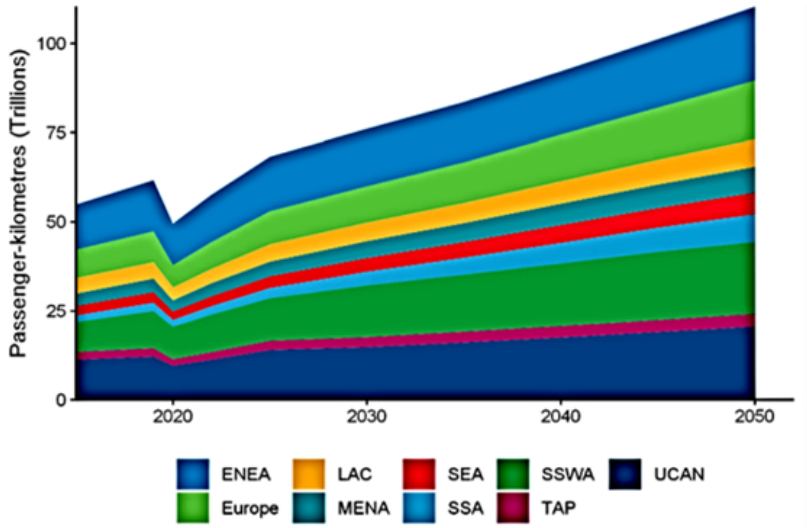
- The transport sector faces a critical challenge: how to meet increasing demand, while reducing carbon dioxide (CO2) emissions. To deliver against the objectives of the Paris Agreement, a higher ambition is required (High Ambition scenario), with accelerated implementation timelines, or increased scales. The High Ambition scenario includes transport and land-use planning measures that promote multimodality, and more compact, mixed-use and denser environments.

What's the issue?

The transport sector will not achieve the decarbonisation objectives if LAC continues with current policies.

Demand for passenger and freight transport will continue to grow in the coming decades across all world regions, including Latin America and the Caribbean (Figure 1). Transport emissions will not fall fast enough, as transport demand will grow. Additionally, the reality is that many decarbonisation plans are progressing slowly.

Figure 1: Passenger transport for demand by region under the Current Ambition scenario, 2019-50



Source: International Transport Forum (2023), ITF Transport Outlook 2023.

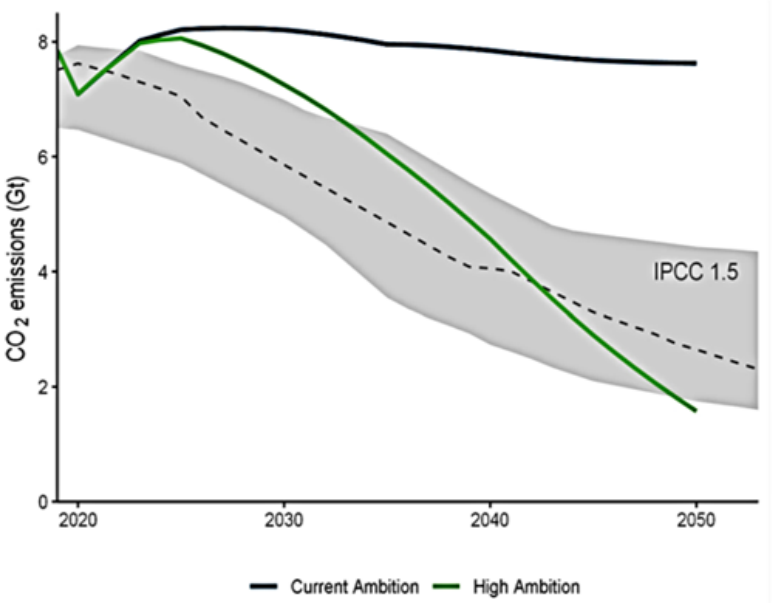
E-commerce activity will continue to grow moderately and reach one-quarter of global retail sales in 2025. More e-commerce activities lead to a rise in freight transport demand, which is linked to increased emissions and congestion in the absence of measures to decarbonise freight activity.

Policy makers play a crucial role in breaking the link between transport demand and emissions. With bolder policies, mode share for private motorised vehicles in urban areas would fall from 49% in 2019 to 36% in 2050, as most passenger travel switches to sustainable modes. Public transport and mass transit offer great opportunities to advance zero-emission travel. But an integrated mixture of transport modes – including ridesharing, shared vehicles and infrastructure for walking and cycling – will be essential.

The transport system will require significant investment in the coming decades. Core infrastructure investment needs to meet projected demand are estimated at 1.7% of global GDP annually. However, the rollout of electric vehicle charging networks, which is essential for electric vehicle uptake, will require significant additional investment.

A High Ambition scenario for freight requires measures such as incentives for high-capacity vehicles (road tractors) that encourage a transition in interurban freight. Innovations in biofuels and SAFs must be also introduced far more rapidly, achieving a more significant market share by 2050 than under the Current Ambition.

Figure 2: Carbon dioxide under the Current Ambition and High Ambition scenarios



Note: Current Ambition (CA) and High Ambition (HA) refer to the two main policy scenarios modelled, which represent two levels of ambition for decarbonising transport. IPCC 1.5°C represents the emission levels needed to limit warming to 1.5°C as introduced by the Intergovernmental Panel on Climate Change. The levels were calculated based on data sourced from the International Assessment Modelling Consortium.

Source: International Transport Forum (2023), ITF Transport Outlook 2023.

Relevant examples from LAC countries [1]

The transport sector in Argentina is responsible for 25.3% and 28.3% of the country's energy-related CO2 emissions, in 2020 and 2021, respectively, according to the ITF Transport Data Explorer (ITF, 2023 b). More than 90% of these emissions stem from road transport activities (ITF, 2020). Most internal freight transport of goods was done by road (i.e. almost 90% of total tonnes-km). Rail and water transport only amounted to 4% and 8% respectively.

Transport demand in Argentina will increase continually in the coming years. Freight volumes will increase by 3% annually and passenger volumes by 2% between 2015 and 2030.

The average age of vehicles in the fleet is 14 years. Coupled, lorry-type vehicles are the oldest type of vehicle on average of the fleet, around 19 years of age on average. In certain activities, such as transporting soybean and grains during harvest season, it is not uncommon to have vehicles over 40 years of age partly due to a lack of effective controls.

Authorities are aiming to increase vehicle efficiencies, and to increase the use of biofuels in the country. Authorities have also promoted regulatory measures that allow for the use of high-capacity vehicles (HCVs): the scalable vehicles (escalables) up to 55.5 tonnes and the even heavier bitrenes (up to 75 tonnes). The scalable vehicles have been much more widely adopted since they have a lower cost and are more flexible, with less restrictions to use across the country's road network. Estimated benefits of escalables include reducing costs by up to USD 1.7 billion between 2019 and 2030; as well as by decreasing up to 14% of total fuel use in the same period.

[1]ITF (2020), Decarbonising Transport in Emerging Economies: The case of Argentina, OECD Publishing, Paris, https://www.itf-oecd.org/sites/default/files/docs/decarbonising-argentina-transport-system_1.pdf

Policy actions for decarbonising Argentina's transport system also go hand in hand with a strategy of increasing multimodality in Argentina's internal freight activities: increasing the role of inland waterways transport, as well as of railways, is essential for reducing internal freight transport greenhouse gas emissions, considering only 4% of internal freight volumes are transported by railways (a rate that is considerably lower than the railways share found in other countries of similar geographical size).

Railway investments have increased in recent year so as to promote rail freight activity. In 2015, a law was adopted making railway investments a national priority. Between 2015 and 2019, public works for more than USD 8.8 billion were assigned to improve and increase the railway networks in Argentina. The share of total transported freight volumes held by rail is expected to triple by 2030, thanks to projected public infrastructure investments. Indeed, increasing railways' transport share could be one of the effective ways of decarbonising freight transport. Public and private investments in the recent years have aimed at facilitating multi-modality between railways and inland waterways in the country. Dry ports across Argentina and new rail terminals for grain transport offer such examples.

Combining the flexibility of road transport with the high capacity and efficiency of other modes will be essential for increasing the overall competitiveness of the system. Road transport will continue having an essential role in the decarbonisation of freight transport in Argentina.

Even with modal-shift policies, it is estimated to remain the dominant mode. Hence, policies directed at increasing the efficiency of, and decreasing emissions from, road freight will also be relevant.

However, various challenges exist for promoting freight transport activities that emit lower GHG emissions, while also addressing the access and competitiveness needs in Argentina:

- Resources: Obtaining the funding and developing the financing schemes required for the infrastructure and fleet improvement investments in the country, in a context of budget constraints and economic uncertainty.

- Coordination: Developing the institutional frameworks that allow coordinating efforts between various actors across different sectors and institutional levels. This applies, for instance, to coordination between public authorities and small-sized truck companies with the objective to include them in the smart transport programme.

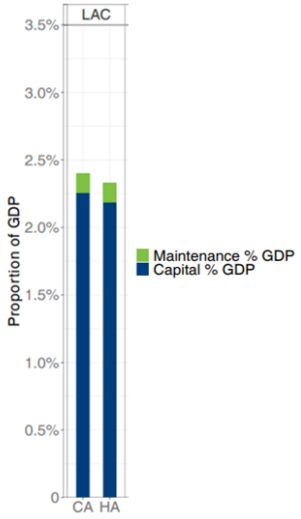
- Size: Argentina's large size is a main challenge for transport activity in the country. Argentina's 2 780 400 sqkm make it the world's eighth-largest country.

Suggested policy actions

Develop comprehensive strategies for future mobility and infrastructure. To ensure increased transport activity is as sustainable as possible, governments should change their approach to planning in the sector. Traditionally, governments follow the "predict and provide" approach, which involves providing infrastructure in response to existing or projected (transport) demand. It is recommended a "decide and provide" approach, where transport investments are strategically aligned with a vision of the future transport system. This means investing in public transport infrastructure and policies that support the move to transport modes with higher occupancy or load factors, and more compact cities.

Such an approach could potentially save governments from spending USD 4 trillion globally on road maintenance and investment (excluding investment in adaptation), representing 5.2% less investment needed for core infrastructure under the High Ambition scenario than under the Current Ambition scenario. The average core infrastructure investment under the Current Ambition (CA) and the High Ambition (HA) Scenarios as a proportion of gross domestic product, across the whole of the period 2019-50, is estimated as follows for LAC over the period 2019 – 2050, according to the International Transport Forum's Transport Outlook 2023 (ITF, 2023a):

Figure 3: Average core infrastructure investment under the Current Ambition (CA) and the High Ambition (HA) Scenarios as a proportion of gross domestic product



Source: International Transport Forum (2023), ITF Transport Outlook 2023.

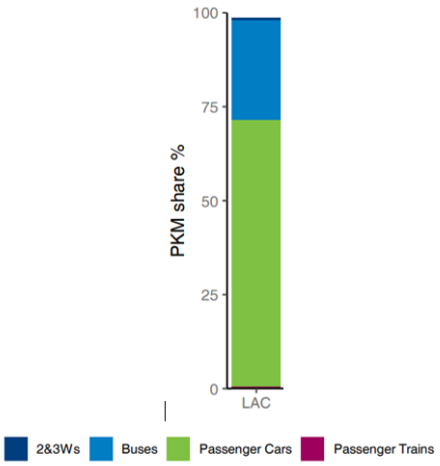
Specifically for road investment, it would be 6.5% less under the High Ambition scenario as a proportion of the spending required under the Current Ambition scenario, due to lower vehicle-kilometres for road modes under the High Ambition scenario. This reduction comes from a combination of sources: for freight transport, higher-capacity vehicles, high costs and a change in commodity types (particularly the reduction in fossil fuels) result in lower tonne-kilometres under the High Ambition scenario in 2050, and fewer road-based vehicle-kilometres. For passengers, the reduction comes mainly from the shift to higher-occupancy vehicles and modes, particularly buses and rail-based modes, and an increase in active modes.

The decide and provide approach also offers the benefits of a consistent investment pipeline, avoiding cost spikes due to changes in demand at particular times.

Implement mode shift and demand-management policies where they are most effective. Measures that reduce trips and travel distances, and encourage the use of more sustainable modes, work well in cities but are not always feasible elsewhere:

- *Long distance travel:* mode-shift policies will make little impact on longer-distance travel, as long-haul air trips are difficult to replace, for instance. Here, transitioning to lower-emitting vehicles and fuels should be the priority.

- *Short distance travel:* private cars are the primary mode of regional transport in most regions. This was a trend across most world regions: the share amounted to roughly 70% in LAC under both scenarios, in 2019 and 2050:



Source: International Transport Forum (2023), ITF Transport Outlook 2023.

SEven considering that some countries can expect to shift regional and short-distance intercity and international travel, to rail, and should pursue this where feasible, passenger cars will dominate regional travel until 2050.

- *Urban passenger activity:* on the other hand, the risk of urban sprawl in fast-growing urban areas is even higher in emerging regions. Unlike the Current Ambition scenario, the High Ambition scenario includes transport and land-use planning measures that promote more compact, mixed-use and denser environments. By 2050, under the High Ambition scenario, increases in urban densities will reduce the growth of the physical expansion of city areas.

Region	Difference in PKM per trip under High Ambition scenario in 2050 compared to Current Ambition scenario (%)	Difference in trips per-capita under High Ambition scenario in 2050 compared to Current Ambition scenario (%)
Latin America and the Caribbean	-15	-1

Note: Table depicts ITF modelled estimates. PKM: Passenger-kilometres.

Source: International Transport Forum (2023), ITF Transport Outlook 2023.

Accelerate the transition to clean vehicle fleets. New vehicle technologies and alternative fuels are crucial for decarbonising transport. Accelerated actions on clean vehicles and fuels account for three-quarters of the difference in emission reductions between the Current Ambition and the High Ambition scenario. Accelerating the transition towards cleaner vehicles and fuels requires targeted policy support with clear, ambitious objectives and support measures.

Incentives to accelerate zero-emission passenger vehicle use should not disadvantage citizens from lower incomes. Alternative fuels and vehicle technologies rely on enabling infrastructure (e.g. electric charging networks and refuelling sites), which will require additional investment.

Consider the additional benefits for urban areas when evaluating policies. Many policies to decarbonise urban mobility have additional positive impacts. Measures that reduce car dependency in cities and improve sustainable transport options, for instance, can make mobility more affordable and improve access. They can also reduce congestion, free up urban space and improve health outcomes by reducing crash risks for cyclists and pedestrians and limiting air pollutants from road traffic.

Reform vehicle taxation to capture external costs of new vehicle fleets. Government revenues from fuel-excise duties will continue to fall as vehicle efficiency improves and the transition to zero-emission vehicles accelerates. This will make them less effective as a policy lever to encourage sustainable behaviours. Efficient road pricing would mitigate the impact of diminishing revenues from fuel duties. Congestion charging can also help capture the external costs of road use more fairly over time and encourage more sustainable travel and transport choices.

Further reading and links

ITF (2023a), ITF Transport Outlook 2023, OECD Publishing, Paris, https://doi.org/10.1787/b6cc9ad5-en

ITF (2023b), ITF Transport Data Explorer https://www.itf-oecd.org/transport-data-explorer (accessed on 05 July 2023)

ITF (2020), Decarbonising Transport in Emerging Economies: The case of Argentina, OECD Publishing, Paris, https://www.itf-oecd.org/sites/default/files/docs/decarbonising-argentina-transport-system_1.pdf