INDEX FOR SUSTAINABLE PUBLIC TRANSPORT EVALUATION
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This publication is part of the Urban Pathways project
INDEX FOR SUSTAINABLE PUBLIC TRANSPORT EVALUATION
The Urban Pathways project helps delivering on the Paris Agreement and the NDCs in the context of the New Urban Agenda and the Sustainable Development Goals. It has established a facility in close cooperation with other organisations and networks active in this area to support national and local governments to develop action plans and concrete implementation measures to boost low-carbon urban development. This builds on UN-Habitat’s role as “a focal point on sustainable urbanisation and human settlements including in the implementation and follow-up and review of the New Urban Agenda”. The project develops national action plans and local implementation concepts in key emerging economies with a high mitigation potential. The local implementation concepts are being developed into bankable projects, focusing on the access to urban basic services to create a direct link between climate change mitigation and sustainable development goals.

The project follows a structured approach to boost Low Carbon Plans for urban mobility, energy and waste management services that deliver on the Paris Agreement and the New Urban Agenda. The project works on concrete steps towards a maximum impact with regards to the contribution of urban basic services (mobility, energy and waste management) in cities to global climate change mitigation efforts and sustainable and inclusive urban development. This project makes an active contribution to achieve global climate change targets to a 1.5°C stabilisation pathway by unlocking the global emission reduction potential of urban energy, transport and resource sectors. The project will contribute to a direct emission reduction in the pilot and outreach countries, which will trigger a longer term emission reduction with the aim to replicate this regionally and globally to make a substantial contribution to the overall emission reduction potential.

This project implements integrated urban services solutions as proposed in the New Urban Agenda providing access to jobs and public services in urban areas, contributing to equality and social coherence and deliver on the Paris Agreement and the Sustainable Development Goals. This is the first dedicated implementation action oriented project, led by UN-Habitat to deliver on inclusive, low-carbon urban services. Securing sustainability and multiplier effect, the project aims to leverage domestic and international funding for the implementation projects that will follow from this initiative.
Urban Pathways Project and Replication Cities
A sustainable public transportation index for Latin America (SPTI – Latam) was developed to evaluate the sustainability of PT systems. The SPTI – Latam is composed by three subindexes: 1) the basic index (BSPTI) containing 29 key performance indicators (KPI) aggregated into four dimensions: environmental, social, economic and system effectiveness; 2) the extended index that addresses exogenous impacts affecting the sustainability of the system and includes 14 additional indicators; and 3) the global index which includes a fifth dimension called governance and integrated planning and 8 indicators. Fifty-one indicators compose the final SPT-LATAM index. The BSPTI is a multi-criteria decision making (MCDM) procedure that uses budget allocation process (BAP) given by 7 regional experts that assigned weights to the different attributes and was applied to 11 Latin American cities\(^1\). The results show a variety of challenges that transit systems have in the region to reach sustainability. The SPTI – Latam could be a powerful tool for decision makers, practitioners, and citizens to have a better understanding of public transport in their cities and the challenges to be solved.

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\(^1\) Belo Horizonte and Rio de Janeiro in Brazil, Bogotá and Medellín in Colombia, Buenos Aires in Argentina, Ciudad de México and León in México, Montevideo in Uruguay, Quito in Ecuador, and Santiago in Chile.
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<td>Monitoring and evaluation methods of transit</td>
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What positive effects could citizens experience as a result?

The results show that half of the cities (Montevideo, Santiago de Chile, Bogotá, Buenos Aires y Ciudad de México) achieved scores between 50 and 56 points) while the other half (Belo Horizonte, Rio de Janeiro, Medellín, Quito, Lima, and León) obtained scores between 45 and 48 points, revealing that there are still some milestones to cover for a sustainable public transportation. The biggest gap is in the environmental dimension, followed by the social dimension. Better results were achieved in the economic dimension. For the environmental category the PM10 emissions, NOx emissions rates and percentage of cleaner technology in PT fleet have the lowest proportional scores. These results were expected since more than 85% of total PT fleet in Latin American cities is propelled by diesel engines. Cleaner vehicles (trams, metro, electric buses) represent less than 6% of the PT fleet in the region, except in Santiago de Chile that has incorporated 386 electric buses (15% of their total fleet are low-emissions vehicles). In the social dimension the figures for the PT stops adapted for disabled people and with reliable passenger information, affordability, and the proportion of vehicles with air conditioning should be reinforced by transit agencies and operators. Within the system effectiveness dimension, especial attention should be given to the IPK, the average speed, and the integrated ticketing system variables. Operating hours shows better performance for Montevideo, Belo Horizonte, Santiago and Ciudad de México with a 24 h/service while Quito has the lowest operating service (14 h/day). Finally, in the economic dimension the relative high modal share for transit (45%) in comparison with European or North American cities with less than 25% of modal split, bring out the high operators’ revenue and productivity. The biggest gaps are in the passenger km per capita, that is the market penetration attribute, and not sufficient subsidies for PT systems in some cities. Annual operating cost per pkm differs widely among the studied cities, being Lima the lowest cost per pkm ($5,28/pkm) while Santiago de Chile ($37,68) has the highest value.
Summary of specific technical and financial considerations cities must take before embarking on implementing the solution

The global index accounts for 51 indicators including paratransit and gender violence inside the PT systems, both historical problems in Latin American cities. Other variables also could help to have a broader image about the current status of PT systems in Latam and the steps needed to achieve sustainability. The main challenge is to get enough good quality updated transport data. Data relevance for appropriate decision-making in transport planning is a vital step for achieving sustainability. Also, the inclusion of sustainability in all planning and operation process is missing. This would require additional expenses and capacity building for municipalities, but also may be an opportunity for them to improve governance, planning and land use integration. The academy should also be involved and start the discussion about sustainable public transport planning. Currently, with the emergency of climate change, there is a new agenda in mobility. Electromobility, car sharing, mobility as a service or autonomous driving are new trends and their discussion should also be part of public transport policy agendas. The inclusion of civil society, operators, and other stakeholders is a key step for integrating all points of view with different visions and interests into one common public agenda for a better and more sustainable PT service.

What are the ideal policies/legislative frameworks for the implementation of this measure?

Currently many Latin American cities are facing a transition in the regulation, planning and operation of PT services, with public tender for PT operators conformed as companies and better performance frameworks containing service quality indicators. This is a first important step to fight the traditional one bus-one owner model and the arbitrariness in the selection of routes, fares, and operation schedules. However, additional efforts should be carried out to include substantial indicators for the social and environmental dimensions, which are missing in current evaluation frameworks of PT services. In some cities, this would need the approval of city councils and the acceptance of PT operators to be monitored permanently in the fulfilment of these requirements. Additionally, transit agencies should develop faster, digitalized and of easy understanding monitoring and evaluation procedures.
INSTITUTIONS

Just a short description on who to target with such a measure and what support they would need from other institutions

The lead agency for is usually transit agencies who plan and regulate public transport services. They would require the support and participation of civil society organizations, academy and other stakeholders for monitoring, processing, co-creating, or re-elaborating evaluation frameworks of PT and overall transport systems.

Funding support is needed for data relevance and processing including the acquisition of digital equipment, integration of existing ones (i.e., traffic cameras), data processing platforms and programs, among others.

National policy frameworks are important regarding transversalities of sustainability on public transport operation in national transit law and other regulations.

Operators are the target to implement the indicators for sustainable PT.

Funding support is needed for sensibilization and capacity building about sustainable PT service.

TRANSFERABILITY, REPLICABILITY

Is this replicable in other cities, regions, businesses? What are the conditions for replicating this solution?

The SPTI-Latam was developed for Latin American public transport context. Cities of different sizes and operation schemes can apply the index. The main requirement is to have updated data for transport supply, travel demand, economic information, and other social and environmental information.
More information about the Urban Pathways project can be found at:

www.urbanc-pathways.org