

Facilitating, Enabling, and Triggering Sectoral Transitions: Peru

Case Study 13. Nonmotorized Transport: Cycling Strategy and Infrastructure Plan for Lima, Peru

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Context

Lima faces challenges in providing proper transport services to its more than 11 million inhabitants (World Justice Project 2022). According to the Ministry of Transport and Communications of Peru, Lima has an excessive number of mass transport units (over 25,000 vehicles) and an oversupply of taxis (250,000 units when it should have half). Although 60 percent of trips in Lima take place on public transport, private vehicle use has increased rapidly in recent years, causing severe road congestion, air pollution, and road traffic accidents. Lima is ranked among the world's worst cities for traffic congestion, and the annual social cost of congestion in the city is \$7 billion (GIZ 2014), around 1.8 percent of Peru's GDP. This has adverse effects on the working class, with 38 percent wasting 90 minutes a day commuting due to congestion (Federación Colombiana de Municipios and Dirección Nacional Simit 2020).

The city design is based on a motorized system, leaving few options for more sustainable means of transport. The lack of adequate infrastructure, legislation, and general cycling culture leaves bicyclists as a vulnerable group of users without tools to defend their rights. World Bank technical and financial support in recent years has aimed to produce several initiatives and policy suggestions that will make a positive impact on Lima's traffic and pollution challenges, and in so doing, empower others to choose more environmentally friendly means of transportation. Existing problems will be aggravated if the trend toward car-dominated cities and metropolitan areas continues (Lefevre 2014).

Cycling is a low-carbon activity, and its only emissions are related to bicycle manufacture. It produces only 21 grams of CO₂ per kilometer traveled, while private cars emit 270 grams, and a public transport bus, 101 grams (Blondel, Mispelon, and Ferguson 2011). The World Bank's recent proposals for a cycling strategy and infrastructure plan for Lima include development objectives to give Lima residents a healthy, low-carbon, efficient, and resilient transport option by making cycling safer, more convenient, and more accessible to the general population. In 2019, only 0.9 percent of all trips made in Lima were made by bicycle. By introducing new policies, the cycling strategy aims to increase this to 15 percent by 2050.

This analytical work conducted by the World Bank in 2020 and commissioned by the Metropolitan Municipality of Lima cites a lack of sound policy, infrastructure investment, and promotion for developing smarter and greener mobility systems, such as cycling and walking (World Bank 2021g). It outlines several transport problems, including a high rate of car accidents, an inefficient public transport system, an old fleet causing air pollution above the maximum permissible limits, an increase in new car numbers, and poor respect for the rule of law. The road network does not provide safe, comfortable, direct, and integrated transport options due to the lack of dedicated cycle lanes on arterial roads and safe traffic management (motor vehicle speeds and traffic volumes) on local roads. Developing and implementing a cycling system is crucial to develop a sustainable city. Local governments are underfunded, limiting the financial and technical resources needed to implement citywide climate-smart urban transport infrastructure. National, regional, and local regulations often promote car-centric urban development and infrastructure. Although there is a growing demand for using bicycles in the city, policies and infrastructure investments aimed at promoting their use are very limited. This is due to the incipient development of national and local policies and investment incentives on sustainable transport, ineffective strategies for informing the population about benefits of using of nonmotorized transport, and outdated laws and regulations with limited capacity to guarantee the road safety and security of cyclists, along with inadequate infrastructure.

Policy

A 2004–10 GEF project helped Peru establish a foundation for better, cleaner, more efficient, and safer urban transport in Lima and reduce GHG emissions. Fully blended with a World Bank loan, which financed the implementation of Lima’s first bus rapid transit (BRT) corridor, the project financed bicycle infrastructure, promotion activities to complement the loan’s nonmotorized transport activities, capacity building for sustainable urban transport, and the first bicycle infrastructure master plan for Lima (World Bank 2013).

In 2010, the Peruvian government issued the first countrywide policy (Law 29593) to improve biking conditions and promote cycling as a means of sustainable transportation. Although innovative, this law did not trigger concrete actions in terms of sound policy and infrastructure investments at local municipalities. Almost a decade later, and with concern about COVID-19 and crowded public transport risks, Lima is strengthening its cycling infrastructure with almost 50 kilometers of emergency cycle lanes and additional bicycle parking facilities. Lima’s mayor during the pandemic, Jorge Muñoz, described this initiative as one that is “needed not only as a preventive measure for COVID-19, but also to help our citizens choose a healthier and more eco-friendly alternative.” It also went hand in hand with the *Yo Respeto* (I Respect) campaign, which promoted road safety in

the city. Road safety has become a top priority in Lima, which has upgraded and protected new bike lanes with vertical bollards, rubber humps, and painted markings to separate them from the roadway and installed dedicated bicycle traffic lights. The city is already making moves toward long-term change beyond the COVID-19 emergency. In June 2020, the Ministry of Transport and Communications of Peru accelerated the approval of the regulation under a new law that promotes and regulates bicycle use as a sustainable mode of transport (Law 30936 of 2019). Lima's city authorities have evaluated the success of their measures and are now planning to make their emergency cycle infrastructure permanent. Their experience shows that, with political will and the right policy landscape, it is possible to shift urban planning and citizen mobility habits to deliver long-term benefits in both population and environmental health (WHO 2020).

Law 30936 establishes measures to promote and regulate bicycle use as a sustainable and efficient means of transport in terms of road capacity and preservation of the environment. This law also assigned specific roles and mandates for public institutions at different government levels. The Ministry of Transport and Communications of Peru prepares and implements public policies for road infrastructure design and promotes urban and rural planning that favors bicycle use, in coordination with public entities at all three levels of government. The National Institute of Statistics and Informatics coordinates and produces basic statistics regarding bicycle use as a sustainable and efficient means of transport through censuses, sample surveys, and administrative public sector records. Under the Lima Metropolitan Municipal Government's Urban Mobility Management Office, the deputy manager of non-motorized transport oversees the development of policies to promote active mobility within the metropolitan area.

Bicycle use in Lima has increased since the start of the COVID-19 pandemic, though around 300 kilometers of cycle lanes remain unconnected, with poor-quality infrastructure design and unsafe intersections. The use of bicycles in Lima rose from 3.7 percent of total trips before the pandemic to 6.2 percent in 2021 (based on data from perception surveys, the actual mode share might be 50 percent lower). The existing 300 kilometers of cycle lanes are not yet fully connected, and few serve as last-mile connections to mass transit stations. Just a handful of BRT stations have integrated bike parking facilities. Despite recent achievements (in 2019 there were 200 kilometers of cycle lanes), there is still a long way to go to improve Lima's cycling infrastructure to consolidate a connected, low-stress network and make it more gender-inclusive (women account for just 18 percent of cyclists). Addressing road safety at key intersections along arterial avenues and collector streets is important to consolidate the growth in cycling demand for people of all genders, ages, and abilities. Another key step is to provide safe last-mile bicycle infrastructure connectivity to mass transit stations, schools, markets, and key public space destinations.

To reduce traffic congestion, decarbonize transport, and increase physical activity, in 2020, the World Bank provided analytical and advisory support to Lima's metropolitan government to increase cycling in the city. This included updating its Bicycle Infrastructure Plan (World Bank 2020c), developing a connected cycle network of 1,383 kilometers by 2040, and developing a proposal to adopt a bicycle strategy with policy recommendations to promote cycling, particularly among women (World Bank 2020d).² The plan supported the city's COVID-19 response approach for pop-up bike lanes during the pandemic, adding almost 100 kilometers of new cycle lanes during these two years. There are plans to add another 114 kilometers of cycle lanes with grant resources from the German government's development bank, KfW. The World Bank is also preparing an investment operation expected to be approved in 2023 under a programmatic approach to improve traffic management and support sustainable transport that includes building another 200 kilometers of cycle lanes and implementing bike-share systems and bike parking facilities at mass transit stations.

Results and Expected Impacts

For the update of Lima's Bicycle Infrastructure Plan, the World Bank supported an analysis of the ex ante social impacts of this plan. Using a standard social cost and benefit analysis to assess the relationship between the cost of a bicycle infrastructure investment and its benefits for communities, the total costs were projected to be S/1,210 million (\$297,000) and the benefits, S/22,978 million (\$6.1 million), with the social benefits outweighing the direct and indirect costs of infrastructure construction by a factor of 19. The analysis finds economic savings related with improved travel time reliability, reduced travel times, reduced risk of death or severe disease, cleaner air, less pollution and congestion, and healthier lifestyles. The plan also expects for the modal share for bikes to grow from 0.9 percent in 2019 to 11.6 percent by 2050 and estimates that the project could reduce emissions in Lima by 0.64 tCO₂e by 2030 and 1.03 tCO₂e by 2050.

Other initiatives across Lima have complemented the government's cycling policies, including the initiative "Promoting Access to Sustainable Transport in Lima through the Use of Bicycles as Means of Transport," a partnership between the World Justice Project, the Metropolitan Municipality of Lima, the Ministry of Environment, and the social movement for cycling, Actibisimo.

Key Takeaways

Cycling projects have a high return in terms of social benefits, which translate into significant economic savings. Presumably, similar initiatives in other cities and countries could also have net positive social effects. Over the past decades, several cities around the world have made substantial progress in promoting cycling. Bogotá,

for example, has built more than 600 kilometers of cycling infrastructure, integrated cycle parking facilities into its BRT system, and continues to support its 48-year-old Ciclovía program, where over 1 million people enjoy more than 120 kilometers of car-free streets every week.

Despite the proven economic viability of cycling mobility projects, there are considerable obstacles to infrastructure programs. The following strategies can help countries and cities overcome these challenges, improving the possibility of implementation (World Bank 2021g):

- Prioritizing active mobility in national and local policies by aligning with broader goals on climate, road safety, health, equity, and build-back-better strategies
- Integrating cycling and pedestrian infrastructure into the following: long-term transport plans as a key component of integrated transport systems; standards for design in local practices for urban infrastructure; and national, regional, and metropolitan levels financing schemes
- Gearing international climate funding and investment toward active mobility and agreeing on corporate commitments for including active mobility projects in infrastructure loans from multilateral development banks
- Setting a minimum of 20 percent of the transport or infrastructure budget for active mobility as the most straightforward way to fulfill and sustain active mobility goals
- Screening transport and road infrastructure projects to ensure adequate and appropriate inclusion of walking and cycling components
- Training staff on best practices for active mobility, with the ultimate goal of creating a dedicated team or unit
- Encouraging tax incentives for private investors, developers, and suppliers
- Ensuring plans reflect the local or national political economy
- Realizing opportunities to finance active mobility in the developing world and make a shift that would meet transport needs, address the economic constraints, and relieve climate change impacts

The main challenges around building nonmotorized transport infrastructure projects are funding, technical capacity, and political economy considerations. To address these challenges, the World Bank's Lima Traffic Management to Support Sustainable Transport Expansion project will finance selected road safety interventions to improve conditions for cyclists (World Bank 2022c). Lima's government officials are also participating in the Latinoamérica Pedalea (Latin America Cycles, or LAP) knowledge exchange program. Under LAP, a program funded by the South-South Knowledge Exchange Facility, Lima's government staff received training directly from their counterparts in Mexico City and Bogotá, regional leaders in terms of planning and designing cycling projects. Representatives from civil society, media outlets, and business

chambers also participated in the program, directly learning from the experiences of their peers in the Mexican and Colombian capitals. Such efforts are aimed at increasing the support base for cycling projects by disseminating the many social benefits that increased cycling brings to the city and forming cross-sectoral and multidisciplinary alliances in the LAP participating cities.