ITDP

Institute for Transportation & Development Policy

Challenges and Opportunities to Expand Rapid Transit in Brazil

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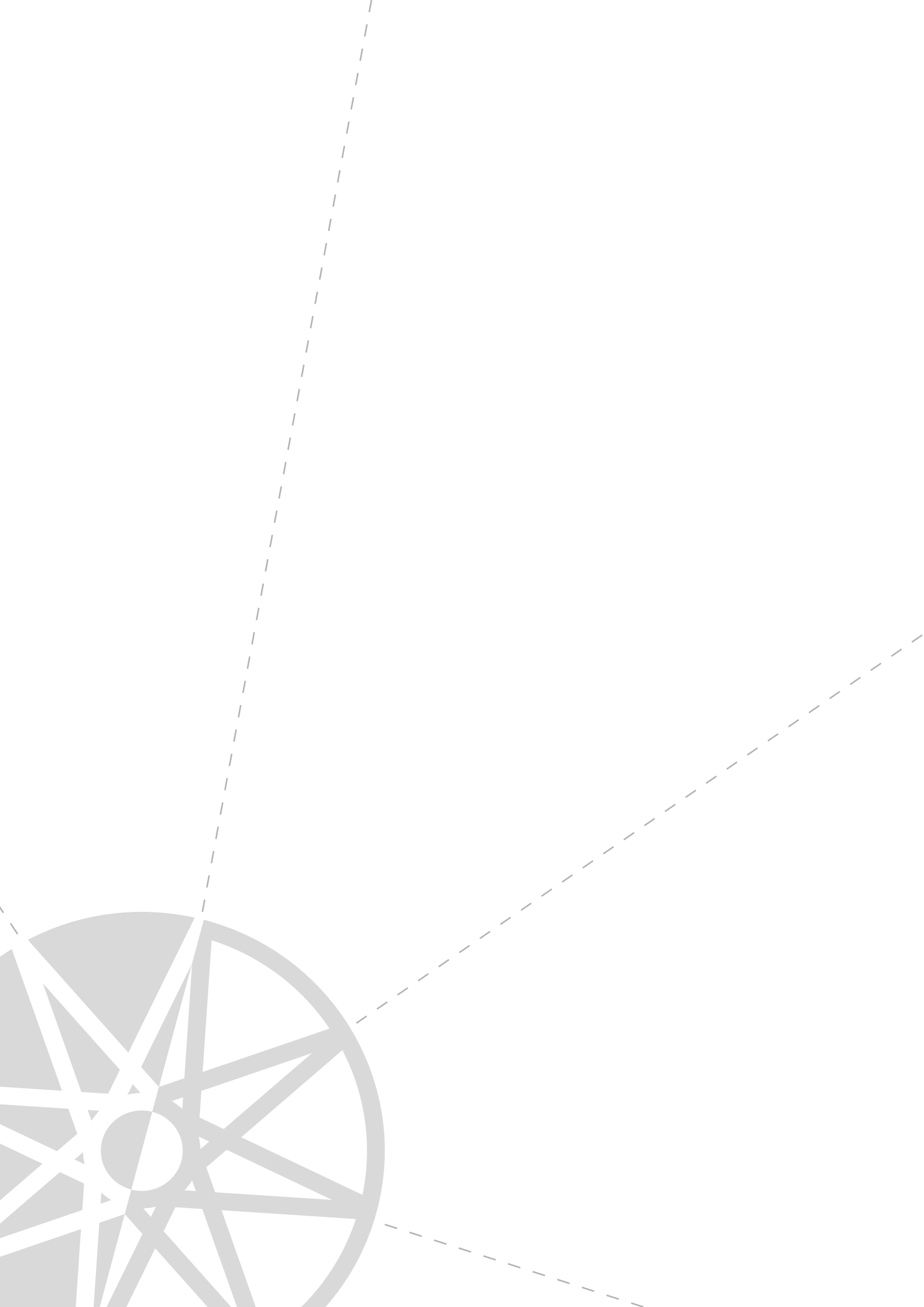

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1.Executive Summary

All over the world, many cities have faced difficulties in expanding their rapid transit networks at the scales and rates needed to meet the challenges posed by urban population growth, economic development and climate change. In order to understand how to respond to these challenges, the Institute for Transportation and Development Policy (ITDP) undertook an international study in nine countries in 2013: South Africa, Brazil, China, Colombia, the U.S., France, India, Indonesia and Mexico. These countries are home to almost half of the world's population, a large share of the global economy and infrastructure, and the majority of greenhouse gas emissions.

The results of this study (see box on page 5) show that the key ingredients to developing rapid transit quickly and efficiently are a combination of dedicated infrastructure funding to meet existing demand, prioritization of cost-effective projects, use of low-cost debt-finance, and development of institutional capacity.

Data from this research shows an increase in investments in rapid transit in Brazil reflecting development in public policies encouraging such investments between 2001 and 2014. However, due to decades of under investment prior to 2001, its current transportation network still falls short of what is needed by the nation's urban population.

In order to measure the expansion of rapid transit infrastructure in various countries, ITDP created the Rapid Transit to Urban Resident ratio (RTR ratio) indicator. It is calculated using the ratio of the total length of kilometers of rapid transit per million urban residents. For this study it is applied only to agglomerations with populations over 500,000 inhabitants, where rapid transit is necessary. According to this indicator, Brazil's RTR ratio increased from 8.8 km of rapid transit per million urban residents in 1980 to 10.7 in 2014 – a very small amount of growth compared to the country's population mobility demands. France, for instance has nearly 7 times as much rapid transit per urban resident with an RTR of 70, and has continued to grow this at a rate of .8 km per year since the year 2000, while Brazil has been growing at just .18 km per year over the same period.

Moreover, Brazil also lags well behind countries such as Colombia and Indonesia that have managed significant hikes in their RTR ratio during the past few years, despite lower GDPs per capita.

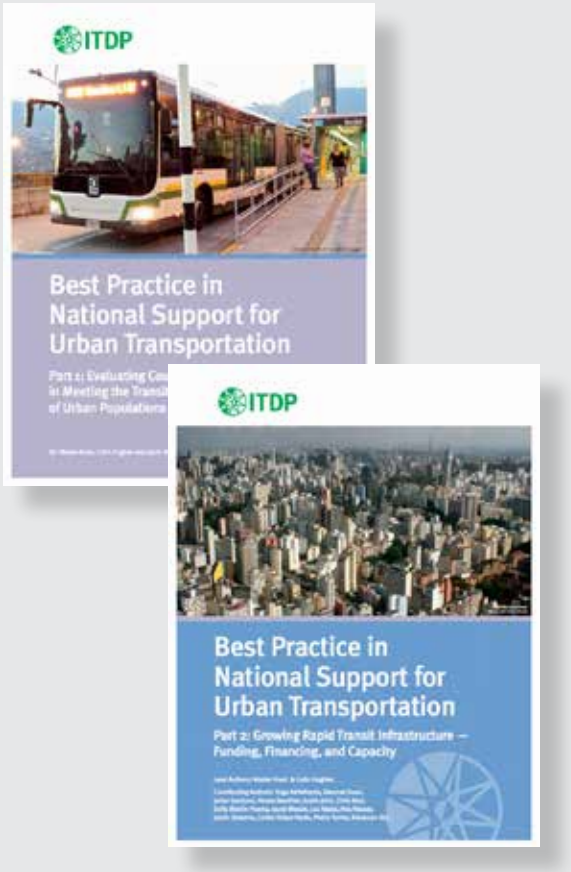
Due partly to public policies implemented by the Brazilian federal government, growth in rapid transit has outpaced growth in urban population since 2012 for net gains in RTR ratio. Based on the portfolio of projects already announced, this is expected to continue through to at least year-end 2016.

Based on ITDP estimates of RTR growth required for Brazil, the nationwide rapid transit network must expand by 1,975 kilometers by 2030. To reach this goal, it will have to lay an average of 132 km per year from 2016 to 2030 in urban agglomerations with more than 500,000 residents. Although ambitious, this growth rate target is in line with the expansion of rapid transit observed in Brazil between 2013 and 2014. The main challenge will be to fine-tune Brazil's planning and financing strategies for rapid transit infrastructure to ensure recent increases in its RTR continue for the next 14 years.

The purpose of this study is to extend and deepen knowledge of rapid transit infrastructure investment practices in Brazil, with analysis on opportunities and challenges for expanding these systems and recommendations on how to steer public policies and investments in this sector.

To accomplish this objective, ITDP Brazil analyzed 15 rapid transit projects that are either under development or have been completed recently across the nation, assessing information on total project costs as well as funding and financing sources. This analysis of the Brazilian context were compared to a study of international best practices, to create recommendations on funding, financing, and institutional capacity to support such growth in rapid transit in Brazil.

ITDP Brazil hopes that this analysis will contribute to reflections on the opportunities and challenges faced by this expansion, highlighting good practices found at the local level and inspiring improvements based on experiences reported in the global study.



The present study, developed by ITDP Brazil, is part of a comprehensive global initiative lead by ITDP. Its first part, "Evaluating Country Performance in Meeting the Transit Needs of Urban Populations, Part 1", was published in May 2014, and analyzed data collected by ITDP's team in nine countries around the world in order to assess the growth of their RTR. The second part of the study, "Best Practice in National Support for Urban Transportation, Part 2: Growing Rapid Transit Infrastructure - Funding, Financing and Capacity", was released in 2016 and analyzes how the availability of funding resources, the access to debt-finance mechanisms and the technical and institutional capacity of the governments may impact the expansion of rapid transit systems in these countries. Both studies are available at **www.itdp.org.**

Funding rapid transit projects in Brazil

In order to expand transportation infrastructure in Brazilian cities, it is vital to ensure funding levels are sufficient, that funding is reliable so institutions can make long-term transportation plans, and that investments are highly cost-beneficial in delivering mobility and accessibility to the local population.

Rapid transit projects in Brazil are funded through a combination of public and private resources. Although the federal government has been playing a key role in providing financial resources to rapid transit projects, these projects are funded mainly through municipal and state government budgets.

Since the turn of the 20th century, Brazil has invested an average of US$ 22 in rapid transit infrastructure per urban resident each year in urban agglomerations with populations of more than 500,000 inhabitants. Although that figure is high compared to many other countries analyzed in ITDP's global study, it still falls far short of the average amounts invested by countries with higher RTR growth rates such as China ($46) and France ($62). Moreover, it is also important to note that high per capita investments alone are not sufficient to ensure that a country is expanding access to urban transportation at the rate needed to respond to the demands of its population. In many countries – including Colombia, Mexico, and South Africa – RTR growth has risen at rates far higher than those in Brazil even while those countries spend significantly less per capita.

Listed below are some recommendations drawn up by ITDP Brazil for improving rapid transit funding nationwide:

1. Sources of financing for rapid transit infrastructure must be regular and predictable. Although Brazil has been able to expand its urban transportation infrastructure significantly during the past decade, regular sources of revenue earmarked for investment in urban transportation are still lacking. This makes extremely difficult for government authorities to draw up long-term infrastructure-expansion investment plans. National infrastructure investment programs – such as the Growth Acceleration Program (PAC) – could become permanent, with public fund release schedules and transparent allocation criteria.

2. Cities must be empowered with financial and institutional capacity for investing in rapid transit infrastructure. City governments are in better position to identify local priorities and the most directly politically accountable for local mobility needs. Thus cities should have tighter control over investment allocations as well as more power to direct them locally. To achieve this, it is critical that federal and state governments strive to support cities financial and institutional capacity over the long term.

3. Governments must seek new ways of generating revenues to fund rapid transit projects. The best options are often those that adhere to the polluter pays principle and tax automobile use while using the revenue to support alternatives, including: congestion pricing, carbon/pollution taxation, vehicle sales taxes, road tolls, and parking fees. Government can also use value capture tax systems to capture increases in property value to fund nearby infrastructure investments.

4. Governments must allocate, plan and select investments in ways that ensure maximum social, environmental, and economic benefits are accrued to the largest possible segment of the population possible for a given investment. By selecting transportation options with high cost-effectiveness, governments can bridge rapid transit infrastructure gaps faster and more effectively. Nevertheless, other aspects such as environmental quality as well as transit type, size, and capacity should be considered in the decision making process for new rapid transit construction in order to improve accessibility for as many people as possible and as low a cost as feasible.

Access to debt-finance tools for rapid transit in Brazil

Rapid transit infrastructure requires massive amounts of capital investment, and generates returns over a long-term. Thus, access to debt-finance is vital for ensuring that infrastructure costs can be paid back against revenue brought in through operations and other benefits. Debt-finance is particularly important in any environment where capital is limited, such as Brazil, where investments are needed to respond to a broad range of social demands.

Since 2007, the Brazilian federal government's infrastructure investment policy has successfully financed many rapid transit projects through debt-finance. In the sample of projects analyzed by this study, on average 50 percent of all infrastructure investment was financed through debt, largely through loans taken out with Brazil's two major development banks: the Caixa Econômica Federal and the National Bank for Economic and Social Development (BNDES). Average level of debt-finance observed in Brazil outstrips that of even more developed countries such as France and the U.S. However, this figure is still lower than China and Colombia, which utilize higher debt finance ratios to attain high RTR growth.

To attain the growth suggested for Brazil's RTR, current debt-finance levels must be maintained if not increased. Some recommendations are presented below, based on the basic assumption that this does not undermine the fiscal accountability required of governments:

1. Debt-finance access processes must be reviewed to ensure the availability of regular, ongoing credit to municipal and state governments with more predictable sources of financing. ITDP recommends that the average debt-finance level should reach around 70% of the total cost of a rapid transit project.

2. Incentives and training programs to enhance cities' financial management are key to improve credit ratings so that they can be trusted with higher levels of debt capacity. Since 2000, Brazil's Fiscal Accountability Law has imposed debt ceilings on cities and state governments based on comparisons between the net debts and net current revenues of states and municipalities. Governments exceeding the debt ceilings established by this law are forbi-

dden to take out further loans. Improved financial management may increase credit ratings providing better access to bond markets, and also may make cities better protected against financial crises.

3. Municipal and state governments must be able to develop and present robust project plans that are seamlessly aligned with local urban planning tools, such cities' master plans and mobility plans, responding to local needs and requirements. The better the project – with clearly demonstrated technical and financial feasibility, integration with other systems already in operation, and passenger capacity tailored to forecast demands – the better it will be for users and the more attractive it will be to potential creditors.

4. Furthermore, municipal and state governments must explore other options for expanding access to different debt-finance instruments, ensuring that investments in rapid transit become progressively less dependent on federal resources. Several strategies may be deployed to diversify debt-finance sources including encouraging Public-Private Partnerships (PPPs), and the issuance of governments bonds. Bond issuances in the country requires a review of the current rules that impose tight constraints on bond issuance due to past experiences with fiscal irresponsibility.

5. Alternatives for public debt guarantee mechanisms must be explored, such as guarantee funds for loans and debt bonds issuance for infrastructure projects. This is an essential step for lowering local government default risks and enhancing the security of rapid transit financing arrangements.

Strengthening technical and institutional capacity for urban transportation infrastructure planning and implementation

Well-integrated multi-modal transportation networks with higher RTR ratios do not depend only on availability of financial resources. Strong institutions are required to ensure successful planning and implementation of investments in urban transportation infrastructure. The 2012 approval of the National Urban Mobility Policy and the Metropolis Statute has done much to reshape the direction of Brazil's urban mobility and metropolitan administration regulatory framework, however large challenges still hamper their effective implementation.

Some recommendations are presented below for upgrading the technical and institutional capacity of government entities in charge of planning and managing urban transportation projects:

1. Right-size organizational structures, tools and processes should be in place by municipal governments to enable planning and implementation of strategies underpinning the expansion of rapid transit. It is crucial that cities draw up their own urban mobility plans to define upgrades and expansion strategies for their urban transportation networks. These plans must be seamlessly aligned with other urban plans, especially master plans.

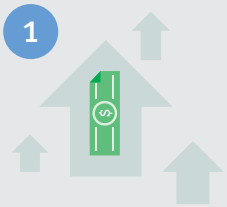
2. Ensure closer coordination at the metropolitan level among municipal governments to streamline urban transportation planning with more effective solutions. Although the Metropolis Statute laid down metropolitan integrated planning and governance guidelines, recent experience in Brazil shows that implementation challenges are still substantive. Federal and state governments support is crucial for ensuring tighter coordination.

3. Develop federal strategies for strengthening local planning and implementation capacity of rapid transit projects. Local governments' lack of technical and human resources needed to design and implement projects and plan long-term investments in urban mobility. Municipal governments must increase capacity and expertise in order to ensure that they are increasingly more capable in financial, technical and administrative capacity.

4. Improve the rapid transit project selection criteria and approval procedures used to receive federal funding. Establishing stringent criteria for transparent allocations of federal funds helps to reduce the influence of variables that run counter to public interests in decision-taking processes and highlight benefits of infrastructure. This is also an opportunity to incentivize municipal and state governments to plan better projects.

5. Explore alternative ways of involving the private sector to improve rapid transit projects such as the use of expression of interest procedures, which allows public administration to benefit from the results of studies conducted by private companies to support the development of projects.

How can countries grow their rapid transit infrastructure?

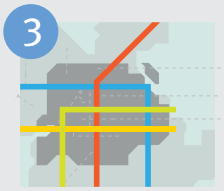


Increase funding, make it stable and predictable

Many countries are spending less than 0.10% of GDP per capita on transit. Increasing to even 0.15% of GDP spent on transit would yield massive infrastructure gains. Consistent, reliable funding would allow authorities to make effective long-term plans.

Give Cities the Power

City-level governments are the most directly accountable to the users of transit. When cities control the funds, have legal authority, and have the technical capacity to plan, design and build projects, the result is more, and better, rapid transit at a lower cost than regional or national governments.



Ensure cost-effectiveness of high quality transit

Countries should invest more in transit that gives their cities the biggest bang for the buck, such as BRT, and cycling lanes, and less in expensive and limited metro systems and rail.

Finance more infrastructure using debt

Debt-finance allows cities to grow the infrastructure quicker, incentivizes better oversight and project quality, and allows the taxpayers that benefit from a project to pay for it.

Better credit ratings mean more money for rapid transit

Cities should focus on improving their credit ratings for greater access to, and efficiency of, the lenders and bond markets needed to finance rapid transit.

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