



From Chaos to Order

Implementing High-Capacity
Urban Transport Systems
in Colombia

IBRD Results

SYNOPSIS

In the past, Colombia faced urban transport problems that significantly lowered the quality of life of urban Colombians. Starting in the late 1990s, the *Programa Nacional de Transporte Urbano* helped transform Colombia's urban transport system. The approaches under this program are now considered international best practice and have been replicated by cities around the world to address their transportation challenges.

Challenge

Public transportation in Colombia was traditionally perceived as inefficient, unsafe and polluting. The streets of Colombian cities were crowded with obsolete buses which operated with disregard for public safety and in near chaos, without organized bus stops. Several factors came together to create this situation and its resulting negative influence on the quality of life of urban Colombians, but two stand out as structural causes to explain Colombia's problems with urban transport:

- The existing transport business model favored competition in the market and a fragmentation of service providers. Bus companies in Colombia were largely informal and operated on a cash-basis; they did not pay taxes or offer social security benefits to their employees. The revenue incentives for a bus company depended on the number of buses that it affiliated which translated into an over-supply of buses, mini-buses and vans in the city. The traditional incentives for bus drivers –and their wages—was the payment per number of boarded passengers, which generated a fierce competition across companies for passengers in the streets, creating safety risks for users and pedestrians. Furthermore, since

there was a low level of enforcement in the use of bus stops, this promoted boarding and alighting along all the curbs, reducing traffic flow.

- There was a weak technical capacity and an unclear distribution of responsibilities in the transport sector that hindered efficient regulation. There was also a historical institutional weakness in the municipalities and in the central government in key functions of planning, managing, operating, monitoring and enforcing the rules and regulations that govern city public transport. This deficiency likely reflected the important leverage of the transport sector in transit policy and the weak technical capabilities of the regulating agencies.

The Government's Approach

In 1996, the central government and several municipalities decided to create the *Programa Nacional de Transporte Urbano* (PNTU- National Urban Transport Program) which centered on the development of Bus Rapid Transit (BRT). The BRT investment strategy targeted high quality, bus-based rapid urban mobility at a fraction of the cost of rail systems. The most famous is Bogotá's Transmilenio, concep-

tualized in 1998 which served as a model for the roll-out of BRTs throughout Colombia's largest cities.

The PNTU supports ten Colombian cities—Barranquilla, Bogotá, Bucaramanga, Cali, Cartagena, Cucuta, Medellin-Valle de Aburrá, Pereira and Soacha. The IBRD, through a series of loans that date back to 1996, has been supporting the PNTU by financing studies and the construction of BRT systems in six of the ten cities, including Bogotá, Barranquilla, Bucaramanga, Cartagena, Medellin and Pereira. It has also provided technical advice on the establishment of a consolidated regulatory and institutional framework for urban transport in Colombia.

Results

IBRD has supported the *Programa Nacional de Transporte Urbano* (PNTU) since 1996 by financing studies and the construction of Bus Rapid Transit (BRT) systems in six of the ten cities, including Bogotá, Barranquilla, Bucaramanga, Cartagena, Medellin and Pereira. It has also provided technical advice on the establishment of a consolidated regulatory and institutional framework for urban transport in Colombia. Users of these transport systems have significantly improved their daily lives, benefiting from an organized, regulated, modern, and reliable public transportation system that utilizes a modern fleet and less polluting fuels, all without disrupting existing traffic.

To date, three BRT systems are operating: Transmilenio-Bogotá, Megabus-Pereira, and Mio-Cali (financed by the Inter-American Development Bank). Each day close to 1.4 million passengers—approximately 27 percent of the city's public transport demand—benefit from the Transmilenio in Bogotá which currently has 84 km of segregated bus lanes in operation along with 114 stations.

According to data from 2009, riding Transmilenio results in average time saving of 32 percent (20 minutes) per trip vis-à-vis the traditional bus system, more than 10 hours a month for the average rider. There have been several other tangible benefits, including a reduction in carbon dioxide emissions. Transmilenio has been able to abate 0.25 Met-

ric tons of CO₂ emissions a year. The program also has decreased accident rates by 90 percent in the corridors where the system operates, scrapped more than 2,100 old buses, and reduced noise levels by 3–10 decibels.¹

117,000 daily passengers or approximately 43 percent of the city's public transport demand benefit from Megabus,

From Chaos to Order—The Public Transit System in Bogotá with and without Transmilenio



Bogotá Cra. 10, 2009



Bogotá Autopista, 2009

“Transmilenio has given me many good things. First of all, it takes me everywhere quickly, even though people complain that it is too packed. The trip is really fast. Second, there's the comfort of having a guide to tell me which bus to take. Third, the bus makes fixed stops as part of an itinerary; the other buses would see I was blind and assume I was going to get in to sign or beg.” *Luis Fernando Rincon Ababadia, User, Transmilenio, Bogotá (Taken from the Book Transport on a Human Scale. The World Bank)*

Pereira's transport system. It generates average time saving for the lowest two income strata by 17 minutes per trip, and has produced a 30,000-ton reduction in CO₂ emissions.² Bucaramanga's Metrolinea, which recently began test operations, will in its first phase of operation serve 31 percent of the city's public transport demand and will gradually move towards servicing 66 percent of all public transport demand. As such, users of these transport systems have significantly improved their daily lives, benefiting from an organized, regulated, modern, and reliable public transportation system that utilizes a modern fleet and less polluting fuels. All without disrupting existing traffic.

Moreover, associated reform of the bus companies helped formalize the transport sector, modernizing the rolling stock and dramatically improving existing labor conditions. To implement BRT systems, a comprehensive reorganization of the sector was required to tackle the way traditional transport companies serviced the market. This reorganization composes the following:

- A competitive bidding process for the market, as opposed to in the market, was created. Under this system, traditional transport companies were granted formal concession arrangements after they had gone through a process of association to become transit operators.
- Drivers formalized their work contracts, working eight hours a day, instead of the typical 14 hours they had to work before the implementation of the BRT systems. They are now formal workers included in the social security network.
- With the formalization of their activities, transport companies are part of the formal economic sector, paying taxes.
- Coupled with the creation of these managing companies, the duties of fare collection and other technological components were also allocated through competitive bidding processes.
- BRT implementing agencies were created at the local level and incorporated as state-owned public companies of each municipality, charged with managing civil work construction required for BRT infrastructure and subsequently, for managing BRT operation and fleet control.

BRTs—Agents of Change



"I was a bus driver for 13 years, but I've worked the last five months as a bus operator. Before that, my job was very stressful, especially because the work day was very long. I complied with the owner's passenger limit and, after 310 passengers, the profits belonged to me. I made sacrifices to get them. Now, my life has changed 100% because I work for three hours, rest for one, and then I continue until I complete eight working hours. I have time for myself, my family, to go to the doctor, to study. Also, society now views me in a different light, and no longer looks down on me as before. Now I have goals set for myself: owing a house and having a well established family." *John Jairo Mina Vidal. Bus Operator (Taken from the Book Transport on a Human Scale. The World Bank)*

- Social and environmental teams were created in each of these local BRT implementing agencies to develop and implement resettlement and environmental management plans for all civil works, following the IBRD's safeguard requirements.

This new institutional arrangement promoted the leadership of the municipality in the planning, execution and operation of the system, and also provided for a new organization of the transport sector characterized by clearly-defined institutional roles, formalized transport companies, and financially sustainable system operations. To date, and unlike the majority of mass transit systems in the world, Colombian BRT systems do not require operational subsidies.

Role of the IBRD

IBRD's engagement with the Colombian government on urban transport has been a long-term partnership that dates back to the mid-1990s. At that time, the government was pursuing a series of regulatory reforms to promote private sector participation in infrastructure, and the city of Bogotá was embarking on a radical program to improve mobility. IBRD, through the Colombia Regulatory Reform Project, first supported a series of regulatory and institutional reforms to prepare various sectors for privatizations and concessions, and also financed the first conceptual designs for the implementation of BRT systems in a number of Colombian cities. In 1998, through

The Transformation of Colombia's Public Transport



“Citizens of...three of the eight projects currently under implementation are already enjoying the benefits of improved transport systems: increased welfare, quality of life, mobility, security, competitiveness and development of their city. These projects have been developed as a policy response of the government of Colombia to issues that relate to the operation of traditional urban public transportation and its adverse impacts on the environment. While the (government) was planning for these mass transport systems, and IBRD loan was identified as source of financing. Thanks to these funds, the project has successfully implemented.” *Andres Uriel Gallego, Minister of Transport, Colombia (Taken from the Book Transport on a Human Scale. The World Bank)*

the Bogotá Urban Transport Project, the IBRD also financed the construction of the first segregated bus corridor that would ultimately become a key milestone for the development of Bogotá's Transmilenio—a BRT system featuring exclusive lanes for the system's buses, organized station access, a unified tariff and a pre-paid fare method. Through this operation, the IBRD also financed and provided technical advice on the conceptual design (technical and institutional) of Transmilenio. Between 2002–2003, the government established the policy and overall institutional framework for the development of the PNTU in 10 large and medium sized cities in Colombia, and established the financial and technical commitments governing the collaboration of the national and local governments in the PNTU. The national government contributes up to 70 percent of the total cost of the program nationwide, with financial contributions in each city depending on specific project characteristics and their financial/fiscal situation. Since 2004, IBRD has launched three Integrated Mass Transit System (IMTS) projects to finance portions of the government's transfers to six participating cities (Bogotá, Barranquilla, Bucaramanga, Cartagena, Medellin and Pereira) to enable them to build and implement BRT systems, and build greater institutional capacity at the national and local level.

The IMTS project umbrella has allowed the IBRD to provide ongoing technical advice on a number of fronts: By assembling a portfolio of grants and donor funding to support activities such as the establishment of a consolidated regulatory and institutional framework for urban transport in Colombia (PPIAF regulatory Reform Grant); The development of a carbon financing operation for Cartagena's BRT; The development of universal accessibility BRT guidelines for disabled people (through a Norwegian grant); The piloting of an impact evaluation of Pereira's BRT, among others. The government is now looking to the BRT system as an important contributor to climate change mitigation and is analyzing how improvements to urban transport systems might contribute to reducing Colombia carbon footprint.

Moreover, the government is currently working on a series of policy reforms aimed at addressing mobility problems in twelve medium-sized cities through the Strategic Public Transportation Systems program. These initiatives are less

infrastructure-intensive, but include policy packages with more instruments on the supply-and-demand management side, including carefully planned fleet size and operations, development of modern public transport companies, integrated fare collection systems, central control and optimization of traffic management. It is likely that the government will ask the IBRD and the IADB to jointly finance this new program.

Timeline

Since IBRD first began supporting Colombia's public transport system in 1996, more than seven IBRD operations have contributed to the technical, operational and institutional reform of the transport sector. Three Integrated Mass Transit System (IMTS) Projects, amounting for USD 757 million have supported the implementation of Colombia's PNTU, and three other operations have tackled the mobility problem in Bogotá.

Timeline:

- 1996 — Bogotá Urban Transport Project (July 1996–December 2001) — USD65 million
- 1996 — Colombia Regulatory Reform Project (March 1996–August 2004) — USD12.5 million
- 2003 — Bogotá Urban Services Project (June 2003–July 2011) — USD 100 million
- 2004 — Integrated Mass Transit Systems Project (September 2004–March 2009) — USD250 million
- 2007 — Integrated Mass Transit Systems Project First Additional Loan (December 2007–March 2010) — USD 207 million
- 2009 — Bogotá Urban Services Project First Additional Loan (February 2009–July2011) — USD 30 million
- 2009 — Integrated Mass Transit Systems Project Second Additional Loan (October 2009–March2012) — USD 300 million

Partners

While IBRD has been the primary external financier of the PNTU, the program has also been co-finance by the Inter-American Development Bank, and the Andean

Development Bank. The Inter-American Development Bank is currently financing the BRT in Cali, and the Andean Development Bank has financed Bogotá's Transmilenio Suba corridor, and will help implement Cucuta's BRT system.

The PNTU also foresees a potential role for Bank-International Finance Corporation. (IFC) collaboration through the IFC's Subnational Facility Program. IFC is currently assessing a series of subnational operations with the local BRT Implementing Entities in Cartagena (Transcribe), Barranquilla (Transmetro) and Medellin (Metroplus) to finance the financing gaps incurred by the participating cities as a result of a time mismatch between their revenue streams (National and local government income and transfers as laid out in the co-financing arrangements) and their project outlays (investment in civil works and financing costs).

Colombia a Model for Developing Country Cooperation

The BRT approach has been replicated in many cities because it is a cost-effective transport solution that can be implemented in a relatively short time. Today, the PNTU is regarded as international best practice in collaboration between central government and municipal authorities to address the transportation ills endemic in many countries. Since its inception, delegations from more than 20 countries, including China, India, Vietnam, South Africa, Kenya, Finland and the United States have visited Colombia to learn about the PNTU program. Similarly, multi-city transport programs are being developed in other countries such as Mexico and Argentina with direct IBRD involvement and there has been a significant collaboration and sharing of knowledge between Colombia and other developing countries.

Towards The Future

A solid partnership in transportation policy has been sustained between the IBRD and Colombia since the project's inception. This relationship is expected to continue until



the PNTU concludes in 2016. Total government commitments from 2009 until PNTU's completion in 2016 amount to approximately USD 1.9 billion for nine of the ten participating cities, of which USD 1.3 billion can be drawn from IBRD financing. The government's transfers have increased as a result of a broadening in the program's physical scope, including expansion of trunk corridors and feeder routes to meet increased demand, renewal of public service networks, and upgrading of public space, among others. In this regard, a subsequent follow-on operation would likely be proposed to continue IBRD support to the PNTU until 2016.

In parallel, the IBRD has been working with the authorities in Bogotá to address the city's public transport problem in a sustainable manner. Through the Bogotá Urban Services Project (and the First Additional Loan), the IBRD is supporting the initial conceptual studies and engineering designs for Bogotá's first metro line. This line will complement and integrate with Transmilenio, which has reached high levels of congestion during peak hours. The city is also currently working on the Integrated Public Transportation System (IPTS) that aims to transform the remaining traditional public bus system not served by Transmilenio (the remaining 73 percent of demand). The aim is to create an integrated bus system that ensures better regulation, optimization and rationalization of all the transit routes and services in the city, while also introducing lower carbon technologies and scrapping the old bus fleet. It will also lead to a change in the current scheme of bus registration and formalization of bus companies and operators. In this sense, it is also envisioned that the IBRD and the Inter-American Development Bank will collaborate to support the IPTS through investment lending operations and resources from the Clean Technology Fund (CTF).

Endnotes

¹ Refer to www.transmilenio.gov.co

² Refer to www.megabus.gov.co

LEARN MORE

- Ministerio de Transporte: http://www.mintransporte.gov.co:8080/transporte_urbano/
- Megabus: <http://www.megabus.gov.co>
- Metrolinea: <http://www.metrolinea.gov.co>
- Metroplus: <http://www.metroplus.gov.co>
- MIO: <http://www.metrocali.gov.co>
- Transmetro: <http://www.transmetro.gov.co>
- Transcaribe: <http://www.transcaribe.gov.co>
- Transmilenio: <http://www.transmilenio.gov.co>
- Project Appraisal Document – Bogotá Urban Transport Project
- Project Appraisal Document – Colombia Regulatory Reform Project
- Project Appraisal Document – Bogotá Urban Services Project
- Project Appraisal Document – Integrated Mass Transit Systems Project
- Project Appraisal Document – Integrated Mass Transit Systems Project First Additional Loan Project Appraisal Document – Bogotá Urban Services Project First Additional Loan
- Project Appraisal Document – Integrated Mass Transit Systems Project Second Additional Loan

MULTIMEDIA

- Video: “The World Bank and Colombia’s National Urban Transport Program” (8 min documentary). The World Bank. 2008
- Video: “The National Urban Transport Program and the World Bank’s Safeguard Policies” (6 min documentary). The World Bank. 2009
- Book: “Transport on a Human Scale”. The World Bank. 2009