

**COLOMBIA**

**STRATEGIC PUBLIC TRANSPORTATION SYSTEMS PROGRAM**

**(CO-L1091)**

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**ABBREVIATIONS**

CAF	Andean Development Corporation
CONPES	<i>Consejo Nacional de Política Económica y Social</i> [National Economic and Social Policy Council]
CTF	Clean Technology Fund
GHG	Greenhouse gas
GoC	Government of Colombia
IDB	Inter-American Development Bank
NDP	National Development Plan
NUTP	National Urban Transportation Program
SETP	<i>Sistema Estratégico de Transporte Público</i> [Strategic Public Transportation System]

## **A. Background, problem, and rationale**

- 1.1 **General context.** Over the past fifty years, Colombia has witnessed a clear urbanizing trend. While in 1950 the urban population accounted for 39% of the total, in 2005 it was approximately 76%. It is estimated that, by 2020, more than 80% of the country's population will be concentrated in cities, 30% more than today's urban population percentage. The functioning of urban transportation systems affects urban competitiveness and economic productivity rates and helps to shape quality of life perceptions.
- 1.2 **Problems of urban transportation.** The transportation problems affecting Colombian cities have elements in common. Colombia is a highly decentralized country and transportation services have traditionally been provided by private operators and been regulated by municipal agencies. While significant steps have been taken at the national level to address this problem (¶1.3 and ¶1.4), its main elements continue to be in evidence in most cities (¶1.5).
- 1.3 Starting in 2002, the Government of Colombia (GoC) undertook to improve public passenger transportation service by developing a national urban transportation policy. This policy is designed to: (i) institutionally strengthen cities in traffic and transportation planning, management, regulatory oversight, and control; (ii) encourage cities to implement transportation systems that address mobility needs in line with operational, economic and environmental efficiency criteria; (iii) improve the efficiency in the use of private cars in urban areas while offering users fast and comfortable public transportation alternatives; (iv) support urban initiatives for public transportation programs; (v) develop regulatory frameworks aimed at optimizing private-sector participation in and sustainability of transportation systems; and (vi) adapt services to users' needs, valuing user perception of the transportation systems.
- 1.4 This public policy is executed through the National Urban Transportation Program (NUTP), created by the GoC to provide urban centers with technical and financial support for transportation system improvement. Thus, it has cofinanced Mass Transit Integrated Systems<sup>1</sup> in cities of more than 600,000 inhabitants and is supporting Strategic Public Transportation Systems (SETPs) in cities of 250,000 to 600,000 inhabitants.
- 1.5 **Diagnostic assessment.** There are similarities in the public transportation systems of medium-sized and large cities, including old and highly polluting vehicles, poor service, little modal integration, and a deficient corporate structure. The development of these systems over time has resulted in: (i) weak technical and institutional capacity leading to permissive and lax regulations; (ii) the granting of transportation permits to companies that are often not operators but holders of a government authorization to operate ("holder"); and (iii) the permit-

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<sup>1</sup> Transmilenio Bogotá has become the world standard for high-capacity BRT networks (Evaluación Ex-Post Sistema de Transporte Masivo de Bogotá, Fases I y II - Informe 4, Noviembre 27 de 2009, EMBARQ - DNP)

holder's assignment of this authorization to individual bus owners to operate the authorized route (operation with fragmented vehicle ownership).

- 1.6 While this structure initially attracted operators in quick succession due to its wrong incentives, it also created undesired consequences. Holders: (i) sought to maximize their profit by adding more vehicles than the route required and the corridor could support, resulting in excess supply and redundant routes and services (particularly in city centers); (ii) created a system of transport companies that are not fleet owners and have no incentives to ensure quality service (provided by small-scale owners); (iii) led in turn to a vehicle fleet whose capacity, age and operating condition are inadequate; and (iv) caused the behavior of operators to be determined by the high levels of market competition, thus generating negative externalities such as high accident rates and poor work conditions.
- 1.7 Practically all routes traverse the city centers, where most business and social urban activity is concentrated and where narrow streets slow down commercial vehicle speed and create traffic problems. The road infrastructure does not contribute to the provision of services; the network is heavily congested, negatively affecting the efficiency of passenger and freight transportation services and other business activities that depend on the transportation system. Poor road maintenance conditions lead to higher operating costs and generate a negative impact on service levels for all road-based modes of transportation. While investment in public transportation infrastructure has increased in recent years, this increase has been insufficient and has taken place only in certain corridors within the major urban centers.
- 1.8 The main indicators of this management system may be summarized as follows: (i) large fleet size (significantly greater than 1 vehicle per 1,000 inhabitants, with oversupply mostly exceeding 40%); (ii) high fleet age (greater than 10 years on average); (iii) inadequate vehicles (small and inappropriate); (iv) 1.50 average vehicle occupancy factor (PKR, passenger/vehicle-kilometer ratio), below desired levels (2.5-3.0) for operator profitability; and (v) low commercial vehicle speeds in central areas (below 10 km/h). The main public transportation characteristics in the cities included in the GoC request for Bank support in implementing SETPs are as follows:

**TABLE 1 – MAIN CHARACTERISTICS OF PROGRAM CITIES**

City/	Armenia	Pasto	Popayán	Santa Marta
Year for figures	2008	2005	2008	2007
Population (inhabitants)	280,930	312,277	257,512	447,860
By social stratum (divided into 6 sextiles, stratum 1 being the lowest-income sextile)	55% stratum 1 25% stratum 2 15% stratum 3	11% stratum 1 46% stratum 2 30% stratum 3	38% stratum 1 14% stratum 2	9% stratum 1 12% stratum 2 44% stratum 3
Trips	437,020	594,804	218,000	636,128
Public transportation trips	280,851	226,026	127,400	152,835
% share public transportation	41.5	38.0	58.4	24.0
Current fleet (oversupply %)	385 (22%)	490 (40%)	651 (53%)	750 (292%)
Required fleet	316	350	424	191
Average fleet age (target <5 years)	10 years	12 years	8 years	15 years
Number of current routes	38	26	43	57
Number of planned routes (% reduction)	27 (29%)	22 (15%)	35 (22%)	26 (54%)
Average speed	18.0 km/h	14.4 km/h	n/a	n/a
PKR (program target = 2,5)	1.42	1.60	1.18	1,10

n/a not available

## **B. Objectives, components and costs**

1.25 **Objective.** The objective of this program is to support the GoC in developing SETPs in four cities (Pasto, Popayán, Armenia and Santa Marta). These SETPs will improve public transportation service for close to one million passengers-day, modernize the transportation sector and mitigate climate change, while contributing to develop sustainable and competitive cities that provide safe mobility options for their population in line with efficiency, fairness, and environmental protection criteria. The lower-income population accounts for most public transportation users. These riders are often required to make longer, combined trips. Physical and fare integration will lead to lower transportation costs, which for this population represent a major portion of daily expenses. Interventions are adjusted to reflect the environment and specific conditions of transportation demand and supply in each city, based on the results of targeted studies. The SETPs comprising this program have the following elements in common.

1.26 **The Clean Technology Fund (CTF) financing.** This program is supplemented by funding from (CTF). This funding, established to mitigate climate change, is part of the program’s financial structure and is consistent with the program’s scope. The CTF funding is aimed at programs in various sectors that are deemed to have transformational potential and a significant impact in reducing greenhouse gas (GHG) emissions. Approval of the national government’s CTF Investment

- Plan was received in March 2010 and includes SETPs among the eligible programs.
- 1.27 **Operations:** Bus operations will be optimized through the following actions: (i) reorganizing and ranking public transportation routes on the basis of relative demand and travel patterns; (ii) prioritizing (in certain sections, setting aside) road space for public transportation on major roadways; (iii) redefining and implementing an appropriate bus typology (size, model) in line with the operational characteristics of each route; (iv) renewing and streamlining bus fleets in an effort to introduce low-emission technologies (both in terms of GHG and local pollutants) and modern fleet management and control systems and reduce oversupply; and (v) implementing integrated and centralized fare collection systems.
- 1.28 **Infrastructure:** The SETPs will have dedicated infrastructure for public transportation, pedestrian access, and other non-motorized transportation, including: (i) modification, paving and/or rehabilitation of priority lanes for public transportation vehicles; (ii) construction of bus stops, stations and/or passenger transfer terminals; (iii) construction of operation control centers and modernization of traffic light control systems; (iv) construction and/or modification of maintenance yards and workshops; and (v) construction and/or improvement of sidewalks, bike paths and other infrastructure for pedestrian access and non-motorized transportation.
- 1.29 **Institutionality:** The SETPs will encourage the development of an appropriate institutional implementation and operation framework by: (i) creating a management authority within the municipal government responsible for implementing the program in each city<sup>2</sup>; (ii) assigning the management authority responsibility for the planning and control of each system's operation and for setting the fare on the basis of technical criteria; (iii) consolidating operating companies with investment capacity, regulated under operating concession contracts; (iv) creating a trust for fare revenue management and distribution to the various stakeholders in accordance with each program's financial structure; and (v) supervising program execution by the Ministry of Transportation's Coordinating Unit.
- 1.30 The loans will be used to finance the following components:
- 1.31 **Component 1: Project management:** This component will support development of the institutionality required by the local management authorities for proper implementation of the SETPs by financing: operating expenses of the local management authorities, and general support for program coordination, evaluation and implementation activities. It includes resources for procuring program evaluations and other specialized consulting services as required during program execution.
- 1.32 **Component 2: Transportation infrastructure.** This component will be used to finance the following infrastructure investments, including technical, economic

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<sup>2</sup> To date, local management authorities have been created for the four cities included in the program.

and socio-environmental studies, engineering and construction designs, and supervision:

- 1.33 Improvement, modification, rehabilitation and paving of the road infrastructure in each city to improve transit and public transportation vehicle service. The type of intervention varies according to the relative importance of each road for public transportation, the current condition of the roads, the system’s traffic requirements, and the relevant bus typology. These infrastructure interventions will be accompanied by a prioritizing (on strategic routes, setting aside) of road space for public transportation along the sections with the highest demand.
- 1.34 Construction and rehabilitation of infrastructure for non-motorized transportation. It includes the required infrastructure interventions for non-motorized transportation, such as sidewalks, public spaces, and feeder bike paths.
- 1.35 Construction and/or modification of stations, bus stops, and/or transfer terminals to more efficiently organize bus operation, enhance safety and accessibility when boarding passengers, and increase transportation corridor capacity. The systems are organized under trunk-feeder arrangements that require the construction of passenger transfer terminals connecting lower density (feeder) routes to higher-demand corridors.

TABLE 2 – SUMMARY OF ROAD INFRASTRUCTURE INTERVENTIONS

Type of intervention	Road interventions by city				
	Armenia	Pasto	Popayán	Santa Marta	TOTAL
Strategic routes <sup>3</sup> (km)	37.1	18.1	28.7	20.6	104.5
Supplementary or preload roads (km)	-	23.7	42.9	10,0	33.7
Feeder roads (km)	-		83.5	30.0	30.0
Terminals	8	5	2	4	19
Bus stops with public space (un)	9		12	26	47
Covered bus stops (un)	40	68	402	154	664
Signed bus stops (un)	525	290	42	380	1237
Pedestrian bridges (un)	-		9	3	12
Bike paths (km)	-	8.0	15.0	13.3	36.3
Vehicle bridges (un)	-	2	1	1	4

- 1.36 **Component 3: Operations management and control systems, including traffic control centers:** The SETPs will have control centers to be used for service scheduling, dispatch control, operations supervision and emergency response functions, among others. This component will be used to finance the implementation of control centers in all four cities and traffic light systems aimed at optimizing traffic at the most heavily congested intersections.
- 1.37 **Component 4. Land acquisition, compensation plans, and resettlement of affected populations:** The SETPs have been planned so as to minimize any socio-environmental impact during construction. However, construction of the access (stations, stops), passenger transfer (terminals) and storage (yards and workshops) infrastructure requires the purchase of land and/or the use of currently occupied public spaces. This subcomponent will be used to finance the necessary

<sup>3</sup> Strategic routes are those operating on the city’s main corridors on mixed-use lanes.

costs associated with mitigation and compensation for the population affected by the SETP, as provided in the ESMR.

- 1.38 **Program cost and financing.** The cost of the SETPs in the four participating cities has been estimated at US\$380.7<sup>5</sup> million, of which the program is financing US\$320.0 million (IDB: US\$300.0 million, CTF: US\$20.0 million). Bank financing, to be charged to Ordinary Capital, could be subject to the Colombian peso conversion option under the Local Currency Facility framework.

Program cost and financing table (figures in US\$ thousands)							
Investment categories	Program cost					Financing	
	Armenia	Pasto	Popayan	Santa Marta	Total	IDB	CTF
1.0 Program management	2,770	2,632	9,00	7,910	22,316	22,316	
2.0 Infrastructure	51,050	59,495	73,762	96,290	280,597	199,867	19,950
3.0 Control systems	7,530	11,030	9,047	7,000	34,607	34,607	
4.0 Land acquisition	9,250	33,160	0	0	42,410	42,410	
5.0 Financing audit	200	200	200	200	800	800	
CTF management fee					50		50
<b>Program total</b>	<b>70,800</b>	<b>106,517</b>	<b>92,013</b>	<b>111,400</b>	<b>380,780<sup>4</sup></b>	<b>300,000</b>	<b>20,000</b>

CTF management fee: Equivalent to 0.25 % of the total loan amount contributed by CTF; will be paid through a capitalized single payment from the loan funds

### C. Country strategy.

- 1.9 The program is included in the 2006-2010 National Development Plan (NDP) and is considered strategically important in accordance with documents 3548, 3549, 3572, 3602 y 3682 of the Consejo Nacional de Política Económica y Social [National Economic and Social Policy Council] (CONPES)<sup>5</sup>, which were approved between 2008 and 2010. In addition, SETPs address the need to establish systems that structure and allow better land-use planning in urban areas. The program's priority was confirmed in the 2010-2014 NDP and the 2010-2032 Master Transportation Plan.

### D. Coordination with other institutions and donors

- 1.10 The NUTP for SETPs has multilateral financing. The World Bank will finance the GoC contributions for the cities of Sincelejo and Valledupar. The Andean Development Corporation (CAF) will finance the SETPs in Montería. The coordinating unit within the Ministry of Transportation will be responsible for implementing the NUTP, ensuring technical coordination and complementarity in the interventions of the various multilateral agencies.

<sup>4</sup> The cost includes US\$60,780,000 invested in 2010 and not forming a part of the financing.

<sup>5</sup> These documents include an evaluation of each of the programs and describe the necessary conditions for GoC participation and the responsibilities of the various actors.