

**PROJECT INFORMATION DOCUMENT (PID)  
APPRAISAL STAGE**

Report No.: AB4704

<b>Project Name</b>	MX Urban Transport Transformation Program
<b>Region</b>	LATIN AMERICA AND CARIBBEAN
<b>Sector</b>	General transportation sector (100%)
<b>Project ID</b>	P107159
<b>Borrower(s)</b>	BANOBRAS
<b>Implementing Agency</b>	BANOBRAS
<b>Environment Category</b>	<input checked="" type="checkbox"/> A <input type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> FI <input type="checkbox"/> TBD (to be determined)
<b>Date PID Prepared</b>	August 12, 2009
<b>Date of Appraisal Authorization</b>	August 17, 2009
<b>Date of Board Approval</b>	October 20, 2009

### **A. Country and Sector Background**

1. Following decades of massive internal migration in a country that was once mostly rural, Mexico's population is now 75% urban and continuing to urbanize. This rapid growth places a tremendous strain on the urban transport network, ultimately affecting both economic productivity and citizens' quality of life. Congestion raises the costs of production of goods and services, damages employee welfare, negatively impacts land use patterns if poorly managed, and leads to demands for expensive and heavily subsidized transport infrastructure. Meanwhile, the transport sector is rife with externalities such as traffic accidents, noise, local air pollutants and greenhouse gases (GHGs).

2. Under such conditions of rapid growth, mass transit development usually cannot keep pace, and precious street space is inefficiently utilized. Motorization in Mexican cities is increasing by about 10% annually, and today private cars often account for 80% of motor vehicles but only 30% of trips. As growth occurs at the urban fringe, commutes lengthen, and cars travel longer distances vying for existing road space. In addressing these challenges, most cities face institutional weaknesses, insufficient staff capacity, lack of an adequate framework for transport policy and planning, lack of transport corridor management, and inadequate operations and maintenance budgets. The UTTP will seek to address all of these issues.

#### ***Institutional Framework***

3. A number of agencies are involved in the provision of urban transport. At the federal level, the Secretariat of Social Development (SEDESOL) is responsible for formulating the federal policy on urban development, including transport. The Secretariat of Communications and Transport (SCT) is responsible for the development and maintenance of the federal railroad and highway network, sections of which often enter and traverse the urban areas. The Secretariat of the environment (SEMARNAT) is the normative federal agency for environmental issues and sets policies and procedures for ensuring compliance with national laws. The Secretariat of Social Development (SEDESOL) is over looks urban development planning including guidance

on transport. In addition to these agencies, the other federal agencies involved are the Secretariat of Finance and Public Credit (SHCP) and the National Development Bank for Public Works and Services (BANOBRAS). The latter is an important funding source in the transport sector, through credits and loans to the states, municipalities and operators of public transport. In recognition of the urgency of the urban transport problem, the Government of Mexico (GoM) has also launched the National Infrastructure Fund (FONADIN), a financial window in BANOBRAS to promote investments in infrastructure through direct federal financial participation and provision of federal loans and guarantees. FONADIN is a successor organization to FINFRA (Infrastructure Investment Fund) and its funds originate from FARAC (Trust for Supporting the Recovery of Licensed Highways), the tolls road agency. FONADIN will partially support projects that incorporate private sector participation or have important environmental benefits. For urban transport improvements the GoM has also created PROTRAM, which are essentially guidelines for the use of FONADIN to provide incentives for the development of mass transit projects in cities with an estimated population by 2010 of 500,000 inhabitants or more. The program has a decision-making structure that allows for the participation of SHCP, SEDESOL, SEMARNAT and SCT. FONADIN can finance planning studies and infrastructure investments with grants, loans and guarantees. Within PROTRAM's rules there are also specific criteria defined for the selection of projects. However, PROTRAM will incorporate an addendum to address the climate footprint of the transport sector as well as to help reorganize the sector.

4. For many cities, the responsibility for transport and traffic regulation, traffic engineering, traffic law enforcement, and short and medium range land use/transport planning is divided among agencies at state and municipal level, or between different departments within individual agencies or even between different municipalities within the same metropolitan area, e.g. Monterrey, Puebla. This division sometimes results in agencies with varying interests and responsibilities having to share responsibility for a major transport project. An additional complicating factor arises from the fact that the design and implementation for such projects is usually much longer than the administrative term of elected officials who have to 'champion' the said project. The long-term vision of the project and the agreements reached with the federal government to projects under the UTTP helps to address this issue.

### ***Urban Transport Issues***

5. **An inefficient traditional model.** The traditional, and still prevailing, model of public transport in Mexico is known as *hombre-camión* (loosely, "a man and his bus") or *guerra del centavo* ("the penny war"). Individual owner-operators of small buses compete for customers within the market, and their day's pay depends upon passengers carried. While this system has led to high frequencies which customers like, it has also led to racing, blocking and other dangerous maneuvers with a high human cost in traffic accidents. It has also led to a dramatic oversupply of poorly maintained old buses, slow speeds due to congestion, and ultimately to higher-than-necessary fares as well. The accidents, congestion, pollution and GHG emissions caused by this system are a blight on urban life, and the effect is particularly harsh on the urban poor, who are transit-dependent and live far away from jobs and services. Nevertheless, this model has proven politically resilient and has remained in operation alongside modern BRT and metro systems in Leon, Guadalajara, and Mexico City, continuing to capture over 80% of trips.

6. **Inefficient land use and allocation of road space.** The low residential density and high downtown employment density prevalent in most Mexican cities make for long commutes. Since private vehicles and public transit share right-of-way, the former are slowed down by the frequent stops made by buses, while the latter are slowed down by the volume of congestion generated by cars which carry few passenger-trips but use a tremendous amount of street space. The poor, who depend on public transport, are most affected by these inefficiencies and must endure long commutes and in-vehicle times.

7. **Fuel efficiency, air pollution, health and the environment.** Mexico has recently experienced a boom in sales of used vehicles from the U.S.A. Due in part to fleet age, vehicle types and poor traffic conditions, Mexico's average fleet economy is significantly behind the U.S.A. Even if Mexico meets the LAC target of 8.3 liters / 100 km by 2050, this improvement will be swamped by fleet growth, resulting in a significant increase in total greenhouse gas emissions as well as local airborne pollutants. Despite fuel technology improvements and Mexico's recent enactment of an environmental legal framework, recent emissions inventories still indicate that mobile sources account for 52% of nitrogen oxide (NO<sub>x</sub>) emissions, 40% of hydrocarbon (HC) emissions and 36% of particulate matter (PM) emissions. The transport sector is also the largest generator of methane (CH<sub>4</sub>) and volatile organic compounds (VOCs). Air pollution is mostly due to (a) a high concentration of ozone, produced by the reaction of VOCs and NO<sub>x</sub> in the presence of sunlight; (b) carbon monoxide (CO), NO<sub>x</sub>, sulfur dioxide (SO<sub>2</sub>) and HCs emitted by vehicles; (c) SO<sub>2</sub> emitted by industrial processes and commercial services using liquid industrial fuels; and (d) particulates smaller than 10 microns (PM<sub>10</sub>) emitted by stationary and mobile sources using diesel and other fuels.

8. **Limited institutional capacity.** In the last decade, some cities—Leon, Monterrey, Guadalajara and Ciudad Juarez for example—have dedicated considerable resources to training and institution building and have managed to maintain experienced staff. However, most cities need to build a great deal of institutional capacity—strengthening planning units, establishing transport management entities, and winning the authority to manage transport demand, currently held by the state government. Under the earlier Medium Cities Project financed in part by the Bank, several cities developed Integral Transport Plans (ITP, or PIMUS in Spanish<sup>1</sup>) that could serve as a basis for moving forward, but others have further to go. Also, under the Introduction of Climate Friendly Measures in Transport, the institutional, regulatory and business model for modern transport corridors has been developed which also provide a useful framework for further reform.

### *Urban transport, climate change and Mexico's response*

9. Mexico has, in the context of the region, a relatively high, carbon intensity (emissions per unit economic output) and one of the most carbon-intensive transport sectors in Latin America. Transport accounts for 18% of Mexico's total GHG emissions, largely due to: (a) a high motorization rate (107 vehicles per 1,000 inhabitants, the highest in Latin America); (b) inadequate street space and resultant congestion; (c) low public transport mode share; (d) a public transport vehicle fleet of relatively old, small vehicles rather than efficient mass transit

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<sup>1</sup> Plan Integral de Movilidad Urbana

vehicles and (e) inadequate fuel standards. Transport's share of GHG emissions is particularly high in cities—as one example, 41% in Mexico City.

10. As a non-Annex I signatory to the Kyoto Protocol, Mexico is not mandated to reduce its GHG emissions but has nevertheless firmly adopted the UNFCCC principle of “common but differentiated responsibilities” and pledged to reduce its GHG emissions voluntarily. Mexico has created a Climate Change Office (COO), supported through an Institutional Development Fund (IDF) grant, which has committed to specific targets, and has reiterated its pledge at various international fora. The Climate Performance Index has recognized Mexico as a leader in this field, ranking it fourth worldwide.

11. In the interest of not only reducing GHG emissions but also raising national economic competitiveness and better serving the poor, Mexico has committed to improving its urban transport system. Raising or, at a minimum, preserving the mode share of public and non-motorized transport is essential. While GHG emissions are a function of many factors such as land use, network design and fuel efficiency, interventions that affect modal split—encouraging public transit, walking and biking rather than private auto use—allow for the cheapest emissions reductions.

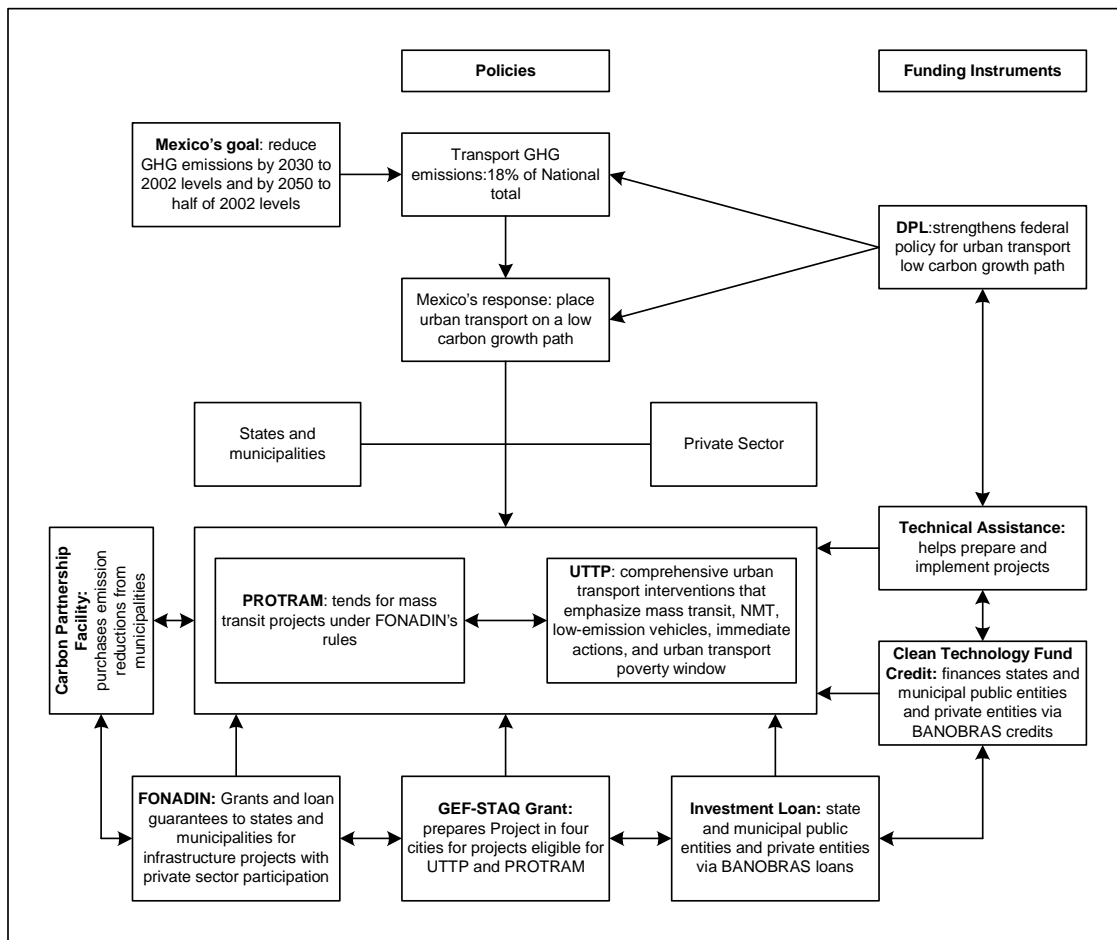
12. Mexico has created a National Mass Transit Program (PROTRAM) within FONADIN to improve the efficiency of the sector and steer it towards a lower-carbon development path. PROTRAM will finance planning studies and infrastructure investments for mass transit through grants and loan guarantees. To be eligible, a project must have an Integral Sustainable Mobility Master Plan (PIMUS in Spanish) that frames overall transport policy. The project description must include supply and demand analysis and benefit-cost analysis; the project must finance, at a minimum, 35% of its total cost through private sector participation schemes; and the city must have a projected 2010 population of at least 500,000.

13. PROTRAM's decision-making structure involves several Federal agencies. The main decision making body in the PROTRAM is the Working Consulting Group (GTC in Spanish). The Finance Secretariat (Secretaria de Hacienda y Crédito Público, SHCP) leads the group, while other agencies in the group such as SCT, SEDESOL, SEMARNAT, BANOBRAS, and FONADIN participate as capable consultant advisers. The GTC analyzes projects from technical, social, environmental, and financial viewpoints to determine the basic feasibility of projects presented to PROTRAM by the cities. The final decision on funding rests with FONADIN's Technical Committee (CT), also headed by SHCP and including representatives of SCT, SEMARNAT, SECTUR (Tourism Minister), and three state governments.

14. As PROTRAM only funds mass transit projects with private sector participation, the GoM has also requested support in its creation of a National Urban Transport Transformation Program (UTTP), to complement PROTRAM. For instance, the UTTP could finance non-motorized transport (NMT)—i.e. pedestrian and bicycle facilities, which PROTRAM could not fund, showing this complementary nature. Inexpensive investments in NMT substitute for auto trips and complement mass transit, helping people reach stations and thus boosting ridership. For this reason, NMT investments—can help the GoM reach its emissions targets, and do so more cheaply. It has been estimated, for example, that standalone BRT projects can reduce CO<sub>2</sub>

emissions at US\$66 per ton, while BRT coupled with NMT improvements can achieve reductions at just US\$30 per ton. Together, PROTRAM and UTTP constitute the core of Mexico's strategy to transform urban transport. To finance the program, the GoM and the World Bank have created a comprehensive package that covers project preparation and implementation as well as technical assistance (Figure 2).

**Figure 2. Elements of the UTTP**



15. The financing for the cities' project preparation and implementation comes from several sources. On the domestic side, FONADIN offers grants and loan guarantees. On the Bank side, the Mexico GEF STAQ project (P114012) offers grants for preparing projects in four Mexican large cities (Puebla, Monterrey, León, and Ciudad Juarez), all of which are currently part of the PROTRAM pipeline of projects. While this grant is not effective at the time of this writing, two of the beneficiary cities have already begun contracting the consultancies needed. It is expected that these cities will be financed by the UTTP and possibly by PROTRAM, if conditions are met. Because these projects are prepared under Bank supervision and rules, they meet the Bank's high technical, fiduciary and safeguard standards. The IBRD Loan and the CTF Loan are being prepared as a single project, and thus are the subject of this PID. (The Carbon Partnership Facility, which also appears in Figure 2, purchases the emission reductions directly from the cities that carry out the projects.)

## **B. Objectives**

16. The Project Development Objective is to contribute to the transformation of urban transport in Mexican Cities to a lower carbon growth path. This objective will be achieved by improving the quality of service provided by the urban transport systems in a cost efficient manner, and by deploying equipment, infrastructure, and operational strategies that reduce CO2 emissions. Achieving the PDO will significantly reduce the transport sector carbon footprint and the emission of related air toxics.

## **C. Rationale for Bank Involvement**

17. The Bank involvement brings together an extensive experience and technical leadership on public-transport and air pollution issues and their linkage to climate change. The Bank's policy dialogue with the transport, environment and climate authorities is based on extensive expertise on the subject. The UTTP builds upon the outcomes of several projects. First is the Mexican Medium Size Cities Transport Program, which strengthened local agencies and supported the federal urban transport decentralization process. This project also helped cities develop their first Integrated Transport Plans, a comprehensive approach to transport planning at the city level. Having a PIMUS is required for a city to participate in the UTTP.

18. Other Bank work on the climate change and transport linkage in Mexico has been primarily in the Mexico City Metropolitan Area (MCMA), but much of the experience will be useful in implementing projects in other cities as well. The Bank's ten-year partnership with the MCMA has given rise to, among other projects, the world's first carbon finance project in the transport sector, the Insurgentes BRT project (P082656). Bank experience in Mexico City relating to urban climate change strategy, transport regulatory framework and business structure, carbon finance and BRT deployment will all be indispensable in achieving emissions reductions in other Mexican cities.

19. Finally, the Bank has supported the development of national urban transport programs and transformational approaches to urban transport services in Mexico, Colombia and Chile. The Bank is therefore well positioned to provide technical assistance to the GoM to achieve the intended PDO because of its extensive experience in supporting urban transport projects in the region and in Mexico.

## **D. Description**

20. The project contains four components:

### ***Component 1 - Capacity Building***

21. This component will finance capacity building at State level and in the participating cities, for developing or strengthening the local urban transport development process. The capacity building activities include: (i) preparation, update or completion, of Integral Urban Mobility Plans (PIMUS) including climate change considerations; (ii) development of plans for modernizing traffic management, efficient allocation of public space for transport related services, and non-motorized transport; (iii) support for urban transport institutions responsible

for sector coordination (iv) training and skill development of local government staff and other civil servants in areas relevant to sustainable urban transport including environment and social matters.

### ***Component 2 - Development of integrated transit systems***

22. This component will finance mass transit corridors and ancillary investments:

- a) Integrated mass transit corridors – Development of Integrated Mass Transit Corridors in cities that have a PIMUS. The financing of such corridors includes but is not limited to: preparation, design, construction, supervision, maintenance and rehabilitation of roads for trunk lines and feeder roads, terminals, yards, transfer and access stations, mixed traffic lanes adjacent to the project, rolling stock, signaling, control centers, information systems, environmental monitoring equipment, and fare collection systems.
- b) Other carbon-reducing investments – Traffic management measures, optimization of public space for mass transport, non-motorized transport, universal access facilities, bike-transit integration, vehicle use restriction, safety and security programs, demand management marketing and promotion, freight management, and car-free planning.

### ***Component 3 - Promotion of low carbon bus technologies and scrapping of buses***

23. This component will facilitate market penetration of low-carbon vehicle technologies and scrapping of old and displaced vehicles:

- a) Market penetration of low-carbon transit technologies (low-carbon rolling stock) .– These vehicles would not be purchased otherwise, because they represent an additional financial commitment to the operator that is not readily justifiable by current market conditions. Financing this sub component will help cities obtain low-carbon buses without having to transfer the additional cost of acquisition to the user.
- b) Scrapping of old and displaced vehicles – This sub-component will finance scrapping programs including: (i) institutional capacity to develop/adopt clean and environmentally sound scrapping strategies (including dismantling process, classification, disaggregation, and final disposal in recycling plants or landfills, and financial mechanisms for implementation), (ii) the purchasing of displaced rolling stock, and (iii) the implementation of the scrapping process.

### ***Component 4 - Project Management***

24. This component will support the overall technical coordination of activities within the cities through a project implementation unit (including the implementation of a technical monitoring system) as well as the administrative and financial management of the eligible projects. It will include goods, consultancy services, travel, and operating costs undertaken for project management. This component could finance the project staff of the implementing agencies, such as coordinator, procurement specialist, and other required personnel for project management, including environment and social specialist as required, as well as external audits, and project indicators, monitoring and evaluation.

## **E. Financing**

Source:	(\$m.)
FONADIN/PROTRAM	868
States/municipalities	225

Private sector	732
International Bank for Reconstruction and Development	200
Clean Technology Fund	200
Total	2,225

## **F. Implementation**

25. The Banco Nacional de Obras (BANOBTRAS) will be the recipient of the IBRD loan and the CTF credit. BANOBTRAS also houses and manages the funds for Mexico's National Infrastructure Fund (FONADIN) and its National Mass Transit Program (PROTRAM). BANOBTRAS will coordinate and monitor the UTTP and have responsibility for analyzing credit capacity of the recipients and oversight of financial management and procurement, closely supervising project implementation, and ensuring compliance with Bank Guidelines and agreed operational procedures BANOBTRAS will also be responsible for all formal correspondence with the Bank as well as performing prior review for terms of reference, consultants' services, civil works and other procurement activities carried out by the recipient of the credits. The technical aspects of the projects will be the responsibility of the UCP (integrated by transport and economic specialists) and the Technical Consultative Group (Grupo de Trabajo Consultivo or GTC) the technical decision making body in PROTRAM that gathers representatives of federal agencies involved with urban transport, namely SHCP, SCT, SEDESOL, and SEMARNAT.

26. The UCP in conjunction with the GTC will carry out the Project technical evaluation. The UCP will coordinate relevant Federal Agencies, namely SEDESOL for urban transport planning urban development and social safeguard issues; SEMARNAT for environmental safeguard issues; and SCT for proposals that include the use of federally-owned railroad facilities. With the inputs from all these agencies, the UCP and the GTC will ensure that urban transport projects comply with technical and financial standards, and social and environmental safeguards. Equally important, GTC will insure project compliance with IBRD and CTF criteria and requirements, as defined in the Operating Regulations of the Program. Once approved from a technical point of view, the GTC then presents the project to BANOBTRAS' internal committees for the approval of the credit to the beneficiary.

27. In order to execute the approved projects, the eligible beneficiary cities will enter into credit agreements with BANOBTRAS. The credit agreement will define the objective of the project, financing allocations, terms and conditions of credits for CTF as well as for IBRD funds, the roles and responsibilities, resource requirements, FONADIN and other co-financing resources, and the expected result indicators of the project being financed. The recipient of the credits will manage and implement the projects, and will: (i) comply with safeguards in project preparation and implementation as defined in the Safeguards Framework (MASTU<sup>2</sup>) of the UTTP; and (ii) follow the procurement regulations and fiduciary procedures set in the Operational Manual approved by the Bank and CTF. A satisfactory draft credit agreement will be prepared and submitted and reviewed by the Bank prior to effectiveness.

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<sup>2</sup> MASTU: Marco de Salvaguardas Ambiental y Social para el Programa Nacional de Transformación del Transporte Urbano Sustentable en México.

## **G. Sustainability**

28. The GoM is committed to the program's successful implementation as indicated by recent policy actions. On the urban transport side, the government recently created the National Trust Fund for Infrastructure (FONADIN). FONADIN's objective is to help states and municipalities finance infrastructure investments. With FONADIN, the GoM created the National Urban Transport Program (PROTRAM), PROTRAM will finance municipal investments in urban transport infrastructure, including mass transit systems as well as preparatory studies and designs. PROTRAM will continue to finance massive urban transport projects in Mexican cities beyond the project's life span. It is also expected that city projects will provide with financial, technical measures to be self-sufficient and comply with environment and social safeguards.

29. On the climate change side, the GoM has undertaken a series of steps that signal its commitment:

- Mexico ratified the UN Framework Convention on Climate Change (UNFCCC) on March 11, 1993.
- México has firmly adopted the UNFCCC principle of "common but differentiated responsibilities" and pledged to reduce its GHG emissions voluntarily, despite not being mandated to limit or reduce its GHG emissions under the Kyoto Protocol.
- Recognizing the multi-sectoral dimension of the climate change challenge, Mexico established the Intersecretarial Commission on Climate Change (Comisión Intersecretarial de Cambio Climático – CICC) in April 2005.
- Mexico is currently developing a Special Climate Change Program (Programa Especial de Cambio Climático – PECC), which is expected to be adopted in 2009.

30. The federal political and economic support for the program is therefore guaranteed. The sustainability of the program will be based on the technical, financial and economic viability of the projects approved and financed through BANOBRAS.

## **H. Lessons Learned from Past Operations in the Country/Sector**

31. *The institutional framework is key to advancing needed reforms.* Within the different planning stages for urban transport reforms, most of the attention goes to the technical aspects of the projects (engineering designs, technology, equipment, etc.), neglecting the institutional framework to back it up. Given the long-term nature of urban transport and climate agendas, it is important to support institutional strengthening at the state and local level.

32. *There is a role for the national governments in the implementation of urban transport services reforms.* Reforms in the sector normally require large investments and complex technical decisions. Given that municipalities lack both financial and technical resources, the participation of the GoM's becomes crucial in promoting reforms at the municipal level. There are also significant national externalities associated with urban transport in a typical city (e.g. GHG emissions, poverty alleviation) that merit the direct support of the federal government.

33. *Implementation strategy should have both high political involvement and strong technical support.* Of the several lessons that come from the successful implementation of BRTs in the region, two are particularly critical. The first is that the implementation of such initiatives

requires visionary leadership willing to take risks and become closely involved in the process. The second is that there is the need to create high-performance implementing agencies with strong technical capacity to design, plan, control, and regulate the mass transit agenda.

34. ***GHG mitigation is a long-term problem that requires a long-term response.*** The Mexican Government has recognized the need for a long-term strategy to reduce the carbon footprint of its economy and accordingly has committed to the development of a long-term strategy reaching beyond 2030. The program will assist in the laying out of the strategy in the urban transport sector and implementation of the initial 5 year period. To assist in this program, the World Bank needs to continue to have a long-term commitment that matches the time requirements needed to secure sizable and permanent GHG reductions. The program supports the long-term vision and the removal of institutional and other barriers.

35. ***The Bank’s involvement should continue to be used for its catalytic effect.*** The World Bank should continue to catalyze the involvement and the participation of development banks and agencies, the private sector, NGO’s and foundations and research and training centers. The Bank should work to mobilize technical and financial support from international environmental agencies and to organize study tours to cities with experience in modern transport strategies. The program will support a dissemination effort of the results and experiences obtained through the implementation of its components.

36. ***Local air management matters from a global perspective.*** Local air pollution issues and global concerns are linked. Local programs may contribute to global benefits. Major environmental and economic benefits resulting from reductions of local air borne pollution can be harmonized with GHG mitigation efforts, to be achieved through a well-implemented reform of the transport sector.

37. ***The mobility needs of the poor are different.*** The poor and very poor often are excluded from public transport services. Their mobility is reduced and with their quality of life. Frequently, public transport does not access poor neighborhoods because of the poor quality of the roads. The UTTP has proposed that cities requesting financing take into account this situation.. At other times, the poor are priced out from using public transit. Research done at the Bank (Estupiñan et al. 2007) shows that demand-side subsidies are more efficient than supply-side subsidies to help the poor.

## I. Safeguard Policies (including public consultation)

<b>Safeguard Policies Triggered by the Program</b>	Yes	No
<a href="#">Environmental Assessment (OP/BP 4.01)</a>	[x]	[ ]
Natural Habitats ( <a href="#">OP/BP 4.04</a> )	[ ]	[x]
Pest Management ( <a href="#">OP 4.09</a> )	[ ]	[x]
Physical Cultural Resources ( <a href="#">OP/BP 4.11</a> )	[x]	[ ]
Involuntary Resettlement ( <a href="#">OP/BP 4.12</a> )	[x]	[ ]
Indigenous Peoples ( <a href="#">OP/BP 4.10</a> )	[ ]	[x]
Forests ( <a href="#">OP/BP 4.36</a> )	[ ]	[x]

Safety of Dams ( <a href="#">OP/BP 4.37</a> )	[ ]	[x]
Projects in Disputed Areas ( <a href="#">OP/BP 7.60</a> )*	[ ]	[x]
Projects on International Waterways ( <a href="#">OP/BP 7.50</a> )	[ ]	[x]

## J. List of Factual Technical Documents

1. Improving Air Quality in Metropolitan Mexico City. An Economic Valuation, Policy Research Working Paper, World Bank, February 2002.
2. Air Quality Management Report, National Institute of Ecology, Mexico, 1996.
3. Audit of Transportation and Air Quality Program for Mexico City, Final Report, ICF Consulting, 2000.
4. Estudio de Pre factibilidad para la Introducción de Autobuses Híbridos para el Servicio de Transporte Publico de la ZMVM e Identificaci6n de Barreras a ser Superadas, UNAM, México, 2000.
5. Estudio Integral de Transporte y Calidad del Aire en la Zona Metropolitana del Valle de México,
6. COMETRAVI, Volumes 1-8 of, México, 1999
7. GEF Strategy for Development of Fuel Cell Buses for the Developing World, UNDP, New York, 2001.
8. Hybrid-Electric Drive, Heavy-Duty Vehicle Testing Project, Final Emissions Report, West Virginia University, February 2000.
9. Implementation Completion Report Mexico Transport Air Quality Management Project for the Mexico City Metropolitan Areas, World Bank, Washington D.C., June 2000.
10. Inventario de Emisiones a la Atm6sfera en la Zona Metropolitana del Valle de México, CAM (Comisi6n Ambiental Metropolitana), México, 1999.
11. Llegando Tarde al Compromiso: la Crisis del Transporte en la Ciudad de México, El Colegio de México, Víctor Islas Rivera, México 2000.
12. Metropolitan Mexico City Mobility & Air Quality. White Paper for the MIT Integrated Program on Urban, Regional And Global Air Pollution, Zegras, C. et al., 2000.
13. México 3a. Comunicaci6n Nacional ante la Convenci6n Marco de las Naciones Unidas sobre el Cambio Climático, Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) e Instituto Nacional de Ecología (INE), México 2008.
14. NYCT Operating Experience with Hybrid Transit Buses, World Bus & Clean Fuel Summit, Los Angeles, June 2000.
15. Programa para Mejorar la Calidad del Aire de la Zona Metropolitana del Valle de México 2002-2010, Secretaria de Ecología del Gobierno del Estado de Mexico, Secretaria de Medio Ambiente del Gobierno del Distrito Federal, Secretaría de Medio Ambiente y Recursos Naturales y Secretaría de Salud, México 2002.
16. Propuesta Preliminar: Diseño Funcional y Proyecto del Corredor Eje Central, Urbanismo y Sistemas de Transporte, SA de CV, México, 2001.
17. Reducing Greenhouse Gases and Air Pollution A Menu of Harmonized Options, STAPPA and ALAPCO, October 1999.

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\* *By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas*

18. Study for Bus-Collective Substitution Program and 33 Bus Corridors, SETRAVI, Mexico, 1999.
19. Transportation in Mexico City, Sheinbaum, C. and Meyers, S., Energy for Sustainable Development, Volume 2, No. 3, 1995.
20. Transportation Policy in Mexico City, Wirth, C., Urban Affairs Review, Vol 33, No 2., 1997
21. Urban Structure, Energy, and Environmental Quality in the Metropolitan Area of Mexico City: Indicators of Sustainability, Secretary of the Environment of Mexico City, 1999.
22. COLMEX. Social Framework for the Corridor Program
23. GETINSA. Diseño Ejecutivo del Corredor Insurgentes
24. GETINSA. Environmental Impact Assessment of Insurgentes Corridor
25. PDD: Project Design Document: Mexico, Insurgentes Avenue Bus Rapid Transit Pilot Project. Document version: 1.4; Document date: 31-Oct-05.
26. NMB: CLEAN DEVELOPMENT MECHANISM PROPOSED NEW METHODOLOGY: BASELINE (CDM-NMB): Version 02 - in effect as of: 15 July 2005; GHG emissions reductions in urban transportation projects that affect specific routes or bus corridors or fleets of buses including where fuel usage is changed. Document version number: 1.2; Document revision date: 31-Oct-05.
27. NMM: CLEAN DEVELOPMENT MECHANISM - PROPOSED NEW METHODOLOGY:
28. MONITORING (CDM-NMM): Version 01 - in effect as of: 1 July 2004. GHG emissions reductions in urban transportation projects that affect specific routes or bus corridors or fleets of buses including where fuel usage is changed. Document version number: 1.2; Document revision date: 31-Oct-05.
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32. Pruebas en Campo de Autobuses de Tecnologías Alternativas En la Ciudad de México Reporte Final Equipo de Transporte y Cambio Climático, SMA and World Bank, 2006;
33. Introducción de medidas ambientalmente amigables, SMA, 2009. Informe final.
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